Public Health Scotland

The National Drug-Related Deaths Database (Scotland) Report

Analysis of Deaths Registered in 2019 and 2020

An Official statistics release for Scotland

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phs.otherformats@phs.scot

0131 314 5300

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Preface

The National Drug-Related Deaths Database (NDRDD) was established to collect detailed information regarding the background and circumstances of people who had a Drug-Related Death (DRD) in Scotland. It helps provide insights into the lives of those who died and highlights potential areas for intervention.

This is the ninth NDRDD report. It includes new data for deaths registered in calendar years 2019 and 2020 along with trend data from 2012. This report analyses DRDs in Scotland on which Accredited Official Statistics have already been published by National Records of Scotland (NRS) [1,2].

Following the recommendations of the Drug Death Reporting Short Life Working Group (SLWG) [3], this report is the first in the NDRDD publication series where the timeframes and inclusion criteria for NDRDD reporting are fully aligned with those of NRS's Accredited Official Statistics. The purpose of these changes is to improve understanding of these important statistics by ensuring that the PHS and NRS statistics for a specific time period refer to the same group of people. This change impacts these statistics in a number of ways:

- The figures shown in this report are based on calendar year of registration of death. As a result, they are not comparable to statistics from previous NDRDD reports which were based on calendar year of death.
- The main commentary in this report now includes deaths by suicide involving controlled drugs (as per the NRS definition), resulting in slightly higher numbers of DRDs included in each year. In previous NDRDD reports, deaths by suicide were described in a separate section, which compared their characteristics with those of 'non-intentional' deaths (mainly accidental overdoses).
- As a consequence of the inclusion of deaths by suicide in the main commentary, the findings described in this report exclude years before 2012. This is because the NDRDD data collection definition was changed in

2012 to include deaths by suicide. Data collected prior to this change (2009, 2010 and 2011) have high levels of incompleteness and cannot be robustly compared with data from 2012 onwards. Data for 2009, 2010 and 2011 are shown in the tables accompanying this release.

In line with a further recommendation of the Drug Death Reporting SLWG, this publication is also accompanied by a short video and infographic summary (**available on the publication page**), offering alternative outputs and visualisations to enhance information accessibility for various audiences.

This report contains the following sections:

- an account of the data collection and analysis of the NDRDD cohorts (**Methods**);
- a description of results, focusing on 2020 NDRDD cohort of deaths, alongside a discussion of trends since 2012 (**Results and Commentary**); and,
- overall **Conclusions**.

For various reasons (described more fully in **Methods**), the collection of robust and high quality NDRDD data has become increasingly difficult over time, resulting in lower levels of completeness, particularly for the reporting period between 2017 and 2020. Where relevant, these issues are described in the commentary.

Main points

Demographic Profile

- As in previous years, most DRDs registered in 2020 were among men (73%).
- The average age of people who had a DRD increased from 39 years in 2012 to 43 years in 2020.
- Over half (54%) of the people who died of DRD in 2020 lived in the 20% most deprived neighbourhoods in Scotland.
- Most people who had a DRD lived in their own home (76%). Over half (63%) lived alone all of the time. The percentage of people in these categories increased over the time series (2012 to 2020).
- In 2020, 602 children were reported to have lost a parent or parental figure as a result of a DRD.

Substance Use History

- Most DRDs (84%) were among people previously known to use drugs. In 2020, 69% of those known to have used drugs had used them for eleven or more years and 45% were known to have injected drugs.
- In 2020, 7% of people who had a DRD were recorded to have had a detox in the year prior to death.
- In 2020, over one third of people who had a DRD (37%) were prescribed an OST drug (mainly methadone) at the time of death. The percentage of people who were prescribed an OST at the time of death has increased since 2012.
- In 2020, around half of the people who had a DRD (47%) had previously experienced a near fatal overdose.

- In 2020, a fifth of people who died (23%) experienced alcohol-related problems in the six months prior to death.

Medical and Psychiatric History and Significant Life Events

- In 2020, 52% of people who had a DRD had a medical condition recorded in the six months before death. Respiratory illness (20%), blood borne viruses (9%), and epilepsy (7%) were the most commonly recorded recent conditions.

- In 2020, 46% had a recent psychiatric condition recorded in the six months prior to death. Depression and anxiety were the most common psychiatric conditions recorded in the six months prior to death.

- In 2020, 41% of people had experienced a significant event in the six months before death (most commonly, ill health or a recent diagnosis (medical or psychiatric)).

- 14% of people who had a DRD had experienced domestic violence prior to death in 2020. Sexual abuse at some point prior to death was recorded in 12% of DRDs in 2020.

Contact with Services

- In 2020, three-fifths of people who had a DRD (63%) were in contact with a drug treatment service at some point in their lives.

- In 2020, 41% of people who died were in recent contact with non-drug treatment services (e.g. social work, housing). Social work contact among DRDs increased over time from 2012 to 2020.

- In 2020, 31% of people who had a DRD had been discharged from a general acute hospital and 3% had been discharged from a psychiatric hospital in the six months prior to death.

- In 2020, 18% of people who had a DRD had been in police custody in the six months prior to death. Eleven per cent of people who had a DRD had been in prison custody in the six months prior to death.

- In 2020, 65% of people (73% of those whose death was opioid-related) were in contact with a service with the potential to address their problematic drug use or deliver harm reduction interventions in the six months before death.

Circumstances of Death

- In 2020, around two-thirds of people had consumed the drugs in (72%) and died in (66%) their own home.

- Over half of DRDs (51%) occurred when others were present at the scene of the overdose. The percentage of deaths where others were present at the scene of overdose (and potentially able to intervene) was lower where people lived alone all of the time (31%) or were aged 45 or over (42%).

- Where known, take-home naloxone (THN) supply has increased over time (39% of 2020 DRDs). Among people who had previously been supplied with THN, 52% had naloxone available at the scene of death.

Toxicology Data

- In 2020, almost all (96%) DRDs occurred after the consumption of multiple substances.

- Opioids (methadone, heroin, morphine or buprenorphine) were implicated in over three quarters (79%) of DRDs in 2020.

- Etizolam (60%), methadone (53%) and heroin/morphine (45%) were the substances most commonly implicated in deaths in 2020.

- Gabapentin and pregabalin implication increased over time, potentially due to their use to enhance the effects of opioids. In 2020, gabapentin or

pregabalin were implicated in 502 deaths, 86% (429) of which were also opioid-related.

- Diazepam presence at post-mortem has decreased sharply from 2015 (65%) to 26% in 2020, while presence of etizolam (a 'street' benzodiazepine) has increased sharply from 2015 (9%) to 2020 (62%).

Prescribing

- Among opioid-related deaths, the percentage of people prescribed an OST at the time of death increased from 34% in 2012 to 46% in 2020.
- In 2020, most OST prescribing at the time of death was well established (one year or more: 68%), via supervised consumption (71%) and within recommended therapeutic dose guidelines (62%).
- In 2020, 49% of people prescribed OST had heroin/morphine present at death, similar to the percentage among those not prescribed OST (52%).
- Methadone was implicated in 53% (706) of DRDs registered in Scotland in 2020 - the highest number and percentage in the time series. The percentage of these deaths that occurred among people not prescribed methadone (40%) was also higher than in previous years.
- Prescribing of gabapentin or pregabalin within 90 days of death increased over time to 25% in 2020. Over the time series combined, gabapentin or pregabalin prescriptions were more common among those prescribed OST (32%) than those not prescribed OST (21%).
- Co-prescribing of methadone with either citalopram (an anti-depressant) or anti-psychotics (associated with a life-threatening ventricular arrhythmia called torsades de pointes) occurred prior to death in 101 (8%) cases. Co-presence at death was evident in 55 cases in 2020, 26 (47%) of which were preceded by recent co-prescribing.

- Recent prescribing of strong opioid painkillers was very rare. In 2020, oxycodone or fentanyl were only prescribed to 25 people who had a DRD.

Introduction

The National Drug-Related Deaths Database (NDRDD) was established to collect detailed information regarding the health and social circumstances of people who had a drug-related death (DRD) in Scotland.

The purpose of this publication series is to further analyse DRDs on which Accredited Official Statistics have already been published by National Records of Scotland (NRS) [1,2] in order to provide insights into the lives of those who died and highlight potential areas for intervention.

This report contains the following sections:

- an account of the data collection and analysis of the NDRDD cohorts (**Methods**);
- a description of results, focusing on 2020 NDRDD cohort of deaths, alongside a discussion of trends since 2012 (**Results and Commentary**); and,
- overall **Conclusions**.

Some of the data quality issues described in this report resulted in the convening of a Short Life Working Group (SLWG) on Drug Death Reporting. Public Health Scotland (PHS) published a **summary** of the Short Life Working Group findings and recommendations in April 2022. In line with these recommendations, this publication is accompanied by a short video and infographic summary (**available on the publication page**), offering alternative outputs and visualisations to enhance information accessibility for various audiences. Further information on the output of the SLWG (along with further information on NDRDD data collection and data analysis) can be found in the **Appendices**.

The data described in this report are collected by the local Data Collection Co-ordinators in each NHS Board area. The authors would like to thank Data Collection Co-ordinators for their hard work and dedication, without which this report could not be produced.

Methods

In the event of an unexpected death, police officers attending the scene of death complete a Sudden Death Report which is passed to the Procurator Fiscal. The Procurator Fiscal then calls for a full pathological and toxicological post-mortem examination to be conducted to determine the cause of death. The findings from these investigative processes are used by NRS to determine the number of DRDs in Scotland.

Defining ‘Drug-Related Deaths’

Both the NDRDD and NRS reports use the ‘baseline’ definition for the UK Drugs Strategy (described in **Annex A** of the NRS report on 2020 deaths [1]). All deaths in Scotland are registered with NRS, who identify DRDs based on a supplementary questionnaire (an ME4 form) that is completed by the forensic pathologist.

Following the recommendations of the Drug Death Reporting Short Life Working Group (SLWG) [3], this report is the first in the NDRDD publication series where the timeframes and inclusion criteria for NDRDD reporting are fully aligned with those of NRS's Accredited Official Statistics. The purpose of these changes is to improve understanding of these important statistics by ensuring that the PHS and NRS statistics for a specific time period refer to the same group of people. This change impact these statistics in a number of ways:

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Data Collection

Alongside the investigative processes commissioned by the Procurator Fiscal, NHS Board Data Collection Co-ordinators collate information on DRDs for internal review and for entry into the NDRDD.

The proforma used for NDRDD data collection was designed to collect a wide range of data on people's health and social circumstances and the circumstances of their death. Information is collected from a range of sources including the Scottish Prison Service, Scottish Ambulance Service, drug treatment services, GPs and hospitals. Information is recorded using a secure online database administered by PHS.

The individual records submitted to the NDRDD were linked with information from general acute inpatient and day case admissions (SMR01) and psychiatric inpatient admissions (SMR04) datasets and Prescribing Information System (PIS) held by PHS.

Data Quality

The quality and completeness of information contained within the NDRDD report is reliant on the contribution of local Data Collection Co-ordinators for the collection of information. The Data Collection Co-ordinators are in turn reliant on local partners for information to be made available.

In recent years, a number of factors resulted in higher numbers of missing or 'unknown' responses for some NDRDD proforma questions. While these areas have been discussed in previous reports, ongoing efforts between PHS and both local and

national organisations have focused on improving data access, quality, and consistency, while also identifying additional data sources to enhance drug-related public health surveillance. In collaboration with data collection coordinators, adjustments to the dataset have been made to improve the accuracy of data recording and to identify areas where access to information remains challenging.

In the previous NDRDD report, due to the challenges that coordinators faced when collecting data during the COVID-19 pandemic, specific data completeness issues were highlighted within each section of the report. Recognising that this made interpretation of NDRDD figures challenging for users of these statistics, we have implemented a new approach to data quality for the first time in this report, which aims to improve consistency and accessibility.

In the Excel **Data Tables** accompanying this release, missing data entries are categorised into one of two groups ('Unknown' and 'Data Excluded') below.

'Data Excluded'

For this publication, a new category ('Data Excluded') representing data quality issues that affect an entire NDRDD case record (a death) has been introduced across the time series. A number of cases across the time series have been excluded from the reporting cohort (see **Appendix 2** for further details), due to one of the following reasons:

- A death was categorised as a DRD by NRS, but was not considered to meet the NDRDD definition by local coordinators at the time of data collection - therefore no information was collected or submitted. This was particularly problematic and apparent in reporting years 2009, 2010 and 2011 (34, 28 and 36 suicides respectively) [1], as the NDRDD definition did not include deaths by suicide prior to 2012.

- A death was categorised as a DRD by NRS and no information was collected or submitted, but was not subsequently queried by PHS. This issue affects a small number of DRDs in 2019 (3) and 2020 (1) and was caused by an administrative error at PHS.

- An NDRDD case record was excluded from analysis (2019: 32 cases excluded; 2020: 3 cases excluded) as it did not contain valid information for the following three variables which (with the agreement of local coordinators) PHS has defined as constituting meaningful core data collection for NDRDD:
    - had been receiving OST treatment (NDRDD Substitutes Proforma Question: *Type of prescribed drug?* - excluded if recorded as *NA*);
    - had contact with drug treatment services (NDRDD Contact with Services Proforma Question: *Contact with specialist drug treatment services that deliver (Tier 3 or Tier 4) drug treatment services* - excluded if recorded as *NA*); and
    - used drugs in the past (NDRDD Drug Use Proforma Question: *Known Drug User* - excluded if recorded as *Unknown*).

'Unknown' data

Similarly to previous publications, certain NDRDD proforma questions had higher numbers of missing or 'Unknown' responses recorded by local data collection coordinators. This particularly affected the completeness of data collected for reporting years 2017 to 2020 (see **Appendix 2** for further details). To prevent any bias within the reporting of results, these 'Unknown' responses have been excluded from the total cohort size when reporting. The reasons for these 'Unknown' responses are provided below.

- There have been an increasing number of people who have died of a DRD in Scotland and limited NHS Board and partner resource to process and record information, thereby resulting in delays and incomplete information submitted.
- Information Sharing between NHS Boards and local partner organisation may often be based on informal arrangements leading to a lack of resilience when people or systems change.

- Data collection occurred during the COVID-19 pandemic. During this period, health and social care resource was re-prioritised, resulting in difficulties obtaining routine requests for information or accessing care records to complete the NDRDD data proforma.

- Changes in the scope of some data sources has meant that some information cannot be obtained.

Interpreting Data Quality in this Report

To ensure consistency in future years, NDRDD responses will be reported according to the following framework:

- Figures represented by 'Unknowns' and 'Data Excluded' will be available to view in the **Data Tables** but are excluded from the total cohort size (denominator) in all percentages (narrative and data tables).

- As alignment with the NRS definition has changed over time (NDRDD definition did not include deaths by suicide until 2012), information on some deaths was not collected. Therefore, while these data are available in the **Data Tables**, DRDs registered in 2009, 2010 and 2011 are not described in the narrative.

Further information on data quality is available in **Appendix 2**.

The National Drug-Related Deaths Database Cohort

Defining the 2020 NDRDD Cohort:

NRS reported a total of 1,339 confirmed DRDs in Scotland during 2020.

NHS Boards submitted 1,335 records which all corresponded to an NRS DRD.

The remaining four responses (<1%) were categorised as 'Data Excluded':

- One case was excluded due to data not being submitted to NDRDD; and,
- Three cases were excluded because the data submitted did not meet the inclusion criteria based on completion on core NDRDD proforma questions.

Of the 1,335 cases discussed throughout this report, 1,278 were classified as 'non-intentional deaths' with the remaining 57 people classified as intentional deaths (i.e. deaths by suicide).

Defining the 2019 NDRDD Cohort:

NRS reported a total of 1,280 confirmed DRDs in Scotland during 2019.

NHS Boards submitted 1,245 records that corresponded to an NRS DRD.

The remaining 35 responses (3%) were categorised as 'Data Excluded':

- Three cases were excluded due to data not being submitted to NDRDD; and,
- 32 cases were excluded because the data submitted did not meet the inclusion criteria based on completion of core NDRDD proforma questions.

Of the 1,245 cases discussed throughout this report, 1,206 were classified as 'non-intentional deaths' with the remaining 39 people classified as intentional deaths (i.e. deaths by suicide).

Further information on data quality can be seen in the **Data Tables** and **Appendix 2**.

Results and commentary

This section presents the findings from the 1,335 drug-related deaths (DRDs) in the 2020 National Drug-Related Deaths Database (NDRDD) cohort (i.e. those DRDs for which information is available), and provides discussion of trends since 2012. Comparisons between 'non-intentional' and intentional deaths are also briefly discussed. Results are organised into the following thematic subsections, each concluding with a description of key findings:

Demographic Profile: Describes the demographic and social characteristics of the NDRDD cohort.

Substance Use History: Describes the extent and duration of substance use, associated treatments and known risk factors.

Medical and Psychiatric History and Significant Life Events: A description of recent medical and psychiatric conditions (and associated hospital admissions) and experience of significant life events including domestic or sexual abuse.

Contact with Services: A description of recent contact with services to provide insights into issues faced by people in the period immediately before death.

Circumstances of Death: A description of the circumstances of deaths.

Toxicology Data: Information about the drugs present in the body at post-mortem and those thought by pathologists to have been implicated in death.

Prescribing: A description of deaths among people receiving Opioid Substitution Therapies and the prescription of other drugs among the NDRDD cohort.

The data tables (**available on the publication page**) include findings from the previous yearly cohorts from 2009 onwards. Data for all yearly cohorts were analysed using the methodology described above, allowing comparisons to be made across the time series (where information was available).

Significance tests have been used to evaluate the reliability and robustness of the findings, ensuring that any conclusions are statistically valid and well supported. Further details of the specific tests used can be found in **Appendix 1.4**.

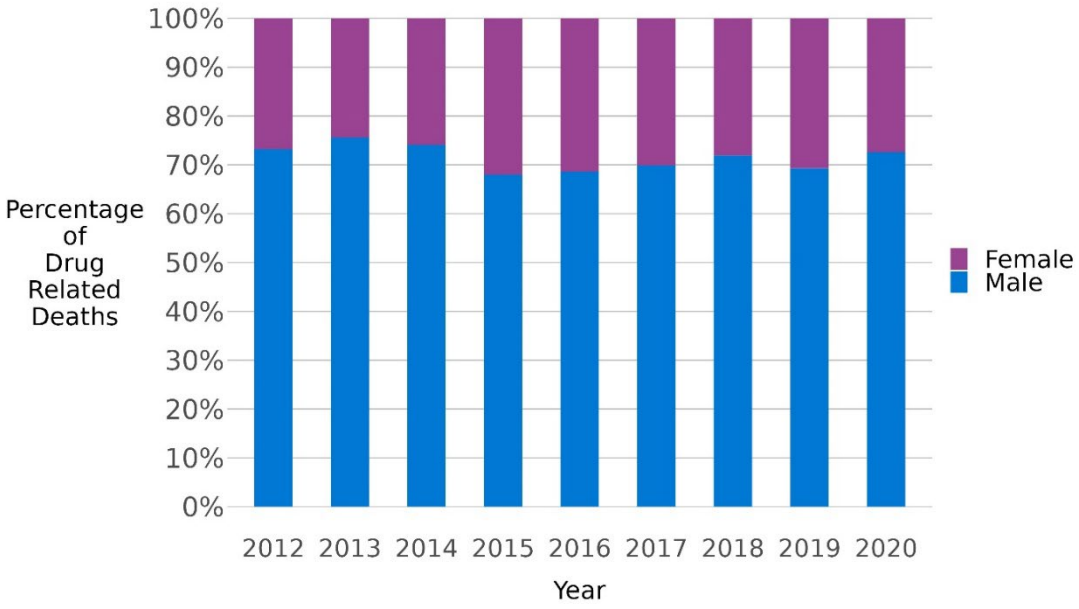
Demographic Profile

Age and Sex

In 2020, around seven in ten drug-related deaths (DRDs) were among males (969; 73%). Over the time series, the percentage of DRDs among females increased from 27% in 2012 to a peak of 32% in 2015, before decreasing to 27% in 2020 (Figure 1).

Among intentional DRDs, women (35/57, 61%) outnumbered men (22/57, 39%) in 2020. Intentional DRDs accounted for a higher percentage of all DRDs among females (35/366, 10%) than males (22/969, 3%) in 2020 and across the reported time series (2012-2020) (data not shown in tables).

Figure 1: Percentage of Drug-Related Deaths by Sex (NDRDD: 2012-2020)

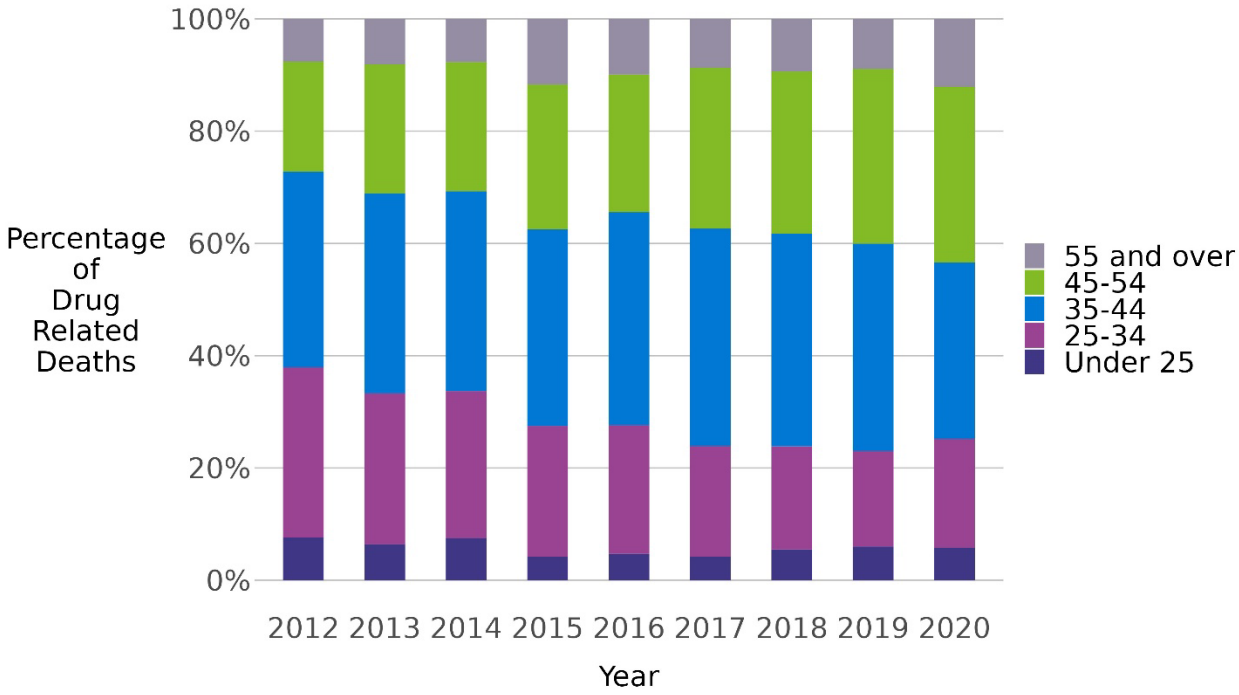


The age profile of DRDs differed between sexes, with the highest percentage of male DRDs in 2020 being among those aged 45-54 (304; 31%), and the highest percentage of female DRDs in 2020 being among those aged 35-44 (129; 35%).

Across all DRDs, the 35-44 and 45-54 age groups each accounted for 31% of DRDs in 2020 (Table 1 and Figure 2).

The percentage of DRDs among those aged 35 and over increased from 62% (317) in 2012 to 75% (998) in 2020. Among these, the percentage of DRDs among those aged 45 and over increased from 27% (139) in 2012 to 43% (579) in 2020. The percentage of DRDs among people aged under 35 fell from 38% (194) in 2012 to 25% (337) in 2020 (Figure 2).

Figure 2: Percentage of Drug-Related Deaths by Age Group (NDRDD: 2012-2020)



The mean age of people who had a DRD increased from 39.4 years in 2012 to 42.6 years in 2020. In 2020 the mean age of females was higher (44.1) years than that for males (42.1 years) (Table 1).

In 2020, the mean age of intentional DRDs (50.7 years) was higher than the mean age of non-intentional DRDs (42.2 years) (data not shown in tables).

Deprivation

In 2020, over half of people who had a DRD (714, 54%) lived in the most deprived neighbourhoods (Deprivation quintile 1) in Scotland, while only 3% of people (40) lived in the least deprived areas (Deprivation quintile 5). The deprivation profile for DRDs has changed very little since 2012 (Deprivation quintile 1: 293, 58%) (Table 2).

Living Arrangements

In 2020, where known, three out of four people who had a DRD (912, 76%) were reported to be living in their own home, 6% (75) were reported to be living in homeless or temporary accommodation, and 4% (49) either lived in a hostel or were of no fixed abode or sleeping rough prior to death (Table 3)[1].

The percentage of people living in their own home prior to death increased from 72% (366) in 2012. The percentage of people who lived in homeless or temporary accommodation increased from 1% (3) in 2012, while the percentage living either in hostels or with no fixed abode or rough sleeping decreased from 7% (33) in 2012.

In 2020, 65% (745) of people were recorded as living alone for part of the time and 63% of people (726) were recorded as living alone all of the time. The percentage who lived alone all of the time increased from 52% (256) in 2012. In 2020, older people were more likely to both live in their own home, and to live alone than those in younger age groups[2] (data not shown in tables).

In 2020, of those who lived with other people, 16% (189) lived with a spouse or partner and 10% (110) lived with parents (Table 4). There were decreases across the

[1] People could have been reported as living in more than one place, therefore totals may exceed 100%.

[2] Living in own home and living alone only (Under 25: 21%, 25-34: 43%, 35-44: 42%, 45 and over: 53%).

reporting time period (2012-2020) in the proportions of people recorded as living with their spouse/partner, their parents, their relatives or with friends.

In 2020, women were more likely to be living with a spouse or partner at the time of death (19%) compared to men (12%) (data not shown in tables). Differences in relationships at the time of death were also observed between intentional and non-intentional DRDs. A lower percentage of people from the intentional DRD group were single at the time of death (15/40, 38%) than in the non-intentional DRD group (653/1,041, 63%) (data not shown in tables).

Parenthood and Living with Children

In 2020, where known, 32% (361) of people who had a DRD were reported to be a parent or parental figure to one or more children aged under 16 (Table 5). In 2020, 6% of people (70) were reported to be living in the same household as the child at the time of their death (Table 6).

In 2020, 602 children lost a parent or parental figure (Table 5). Of these 602 children, 21% (127) were reported to be living in the same household as the deceased parent or parental figure at the time of death (Table 6).

A lower percentage of people whose death was intentional (3/43, 8%) were reported to be living in the same household as a child at the time of death compared with non-intentional DRDs (359/1,081, 33%) (data not shown in tables).

Summary

- As in previous years, most DRDs registered in 2020 were among men (73%).
- The average age of people who had a DRD increased from 39 years in 2012 to 43 years in 2020.
- Over half (54%) of the people who died of DRD in 2020 lived in the 20% most deprived neighbourhoods in Scotland.

- Most people who had a DRD lived in their own home (76%). Over half (63%) lived alone all of the time. The percentage of people in these categories increased over the time series (2012 to 2020).
- In 2020, 602 children were reported to have lost a parent or parental figure as a result of a DRD.

Substance Use History

Drug Use and Injecting Status Prior to Death

In the 2020 cohort, 84% (1,122) of people who had a DRD 'were known'[3] to have used drugs prior to death (Table 7). This figure was broadly consistent with previous years.

In 2020, and across the time series combined, the percentage of females who were known to use drugs prior to death was lower than for males (2020: 75% compared to 88%, 2012-2020: 76% compared to 87% - Table 7). Known drug use was also lower in the intentional DRD cohort (21/57, 37%) than among non-intentional DRDs (1,101/1,278, 86%) (data not shown in tables).

A key change in the DRD cohort over time has been the increasing percentage of people who were known to have used drugs over a longer period of time. Where the length of drug use was known, the percentage of people who used drugs for 20 or more years increased from 27% in 2012 (103) to 40% in 2020 (328) (Table 7). Increasing long-term drug use among the NDRDD cohort was associated with the increasing average age of people who had a DRD.

In 2020, 45% (505) of people who had a DRD and were known to have used drugs prior to death were also known to have injected (Table 8)[4]. Over the time series, the percentage of DRDs among people who were known to inject drugs increased from 57% in 2012 to a peak of 64% in 2014, followed by a decrease to 45% in 2020.

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[3] This information has been recorded by data collection co-ordinators using evidence gathered from a variety of sources (e.g. health, social care, or other partner agencies).

[4] This includes those injecting intravenously, intramuscularly (‘muscle popping’), or subcutaneously.

Although there was considerable variation between yearly cohorts, recorded injecting was higher among females (59%) than males (56%) across the time period (2012-2020) combined (Table 8).

In 2020, recorded injecting was highest amongst the 35-44 year and 45 years and over age groups (both 51%), 32% in 25-34 year olds, and lowest in those under 25 years (15%) (Table 8).

Among people known to inject drugs (where the length of drug use was also known), the percentage who injected drugs over a period of 20 years or more increased from 17% (37) in 2012 to 23% (83) in 2020.

In 2020, the NDRDD cohort consisted of 213 (16%) people not known to use drugs (NK-PWUD), 617 (46%) people known to use drugs (PWUD), 307 (23%) people known to inject drugs for 10 years or less (PWID≤10) and 198 (15%) people known to inject drugs for more than 10 years (PWID>10).

Additional comparisons for these groups (NK-PWUD, PWUD, PWID≤10, PWID>10) are also provided within **Medical and Psychiatric History and Significant Life Events** and **Contact with Services** sections of this report.

Drug Detoxification

In 2020, where known, 7% of people who had a DRD (67) had undertaken a drug detoxification in the year prior to death. Of those who had a drug detoxification in the year prior to death (and where the date was known[5]), 24% (16 people) died within one month of this treatment (Table 9).

[5] Data on drug detoxification (within the 12 months prior to death) were recorded as unknown in 24% of deaths in 2020.

Substitute Prescribing

In 2020, 54% of people (717) in the NDRDD cohort were prescribed an Opioid Substitution Therapy (OST) drug at some time since 2012[6]. Of these people, 96% (678) had been prescribed methadone.

In 2020, 37% of people (493) were prescribed an OST drug at the time of death. Of these, 91% (448) were prescribed methadone, with the remainder receiving buprenorphine (7%, 34) and buprenorphine and naloxone (2%, 11) (Table 10).

The percentage of the cohort prescribed an OST drug at the time of death has increased over the time series (2012: 27%). Although there was considerable variation between yearly cohorts, prescription of an OST at the time of death was higher among females (40%) than males (34%) across the time series (2012-2020) (Table 10).

In 2020, the percentage of people prescribed an OST at the time of death was higher among the older age groups (35-44: 48%, over 45: 43%) than among the younger people (under 25: 4%, 25-34: 16%). In most years (apart from 2014) and across the entire time series combined, the percentage of people prescribed OST at the time of death was highest among people aged 35-44 years (Table 10).

For information on the dosage, supervision, and efficacy of OST prescribing, see the **OST Prescribing section**.

[6] Due to issues with capturing Community Health Index numbers from prescriptions, there is a risk that the figures presented may underestimate OST prescribing since 2009. Inter-year comparisons were not included in this report due to the restricted look back period available for analysis.

Previous Near Fatal Drug-related Overdoses[7]

In 2020, 47% (629) of people had a record of a near fatal overdose. Of these, 16% had experienced five or more incidents over their lifetime (Table 11). Recorded overdoses were more common among females than males across the time series, and in 2020[8]. Recorded overdoses were also more common among non-intentional deaths (612/1,278, 48%) than intentional deaths (17/57, 30%) in 2020.

In 2020, of those who had experienced a previous overdose and the length of time since the previous overdose was known, 36% (213) had overdosed within six months of death (23% (138) had overdosed in the three months prior to death) (Table 12).

Alcohol-Related Problems[9]

Around one in five (23%, 301) people who had a DRD in 2020 had received treatment for their alcohol use, been in contact with alcohol services, or had medical or psychiatric notes about alcohol-related problems recorded in the six months prior

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[7] Data related to the number of overdoses experienced were either recorded as unknown or included incomplete data in 11.1% of records in 2020. The length of time since previous overdose were recorded as unknown or data incomplete in 4.6% of records in 2020.

[8] Recorded overdoses: 2012-2020: female 55%, male 47%; 2020: female 54% male 45%.

[9] Inconsistencies in the recording of data relating to 'problem alcohol use' as a recent medical condition led to the formulation (since 2013) of an alternative alcohol category. People are categorised as having recent alcohol-related problems if any of the following were recorded in the six months prior to death: Alcohol-related medical condition; Alcohol-related psychiatric condition; problematic alcohol use noted in mental health history; contact with alcohol services; or treatment for alcohol dependence. As the scope of this category extends beyond medical conditions, it is not reported in the **Medical and Psychiatric Conditions Section**.

to death. The percentage of people with recent alcohol-related problems has decreased over the time series (2012: 40%, 205) (Table 13).

Across the entire time series combined, the percentage of female (23%, 512) DRDs with recent alcohol-related problems recorded was lower than among males (30%, 1,645). However, in 2020, the percentage of males (23%, 227) and females (20%, 74) with recorded alcohol-related problems was similar (data not shown in tables).

Summary

- Most DRDs (84%) were among people previously known to use drugs. In 2020, 69% of those known to have used drugs had used them for eleven or more years and 45% were known to have injected drugs.
- In 2020, 7% of people who had a DRD were recorded to have had a detox in the year prior to death.
- In 2020, over one third of people who had a DRD (37%) were prescribed an OST drug (mainly methadone) at the time of death. The percentage of people who were prescribed an OST at the time of death has increased since 2012.
- In 2020, around half of the people who had a DRD (47%) had previously experienced a near fatal overdose.
- In 2020, a fifth of people who died (23%) experienced alcohol-related problems in the six months prior to death.

Medical and Psychiatric History and Significant Life Events[10]

Information from medical records (e.g. GP notes) and other data sources is recorded by NDRDD Data Collection Co-ordinators. The accuracy of these data is dependent upon access to relevant data sources and the comprehensiveness of the information they contain.

The decrease in the percentage of DRDs with a recent medical or psychiatric condition observed in 2020 (2019: 73%, 2020: 69%)[11] may be related to the challenges faced by some Co-ordinators in collecting comprehensive medical and social care information. Therefore, findings for 2019 and 2020 may be less reliable than in other years.

Difficulties accessing sources and the sharing of information may also be related to the unexpected decrease in DRDs where significant events were recorded, potentially also indicating that these data are not as reliable as in previous years.

Recent Medical Conditions

One or more medical condition was recorded in the six months prior to death (hereafter referred to as 'recent') for 52% of people in the 2020 NDRDD cohort (686) (Table 14 and Figure 3). The percentage with a recent medical condition varied from

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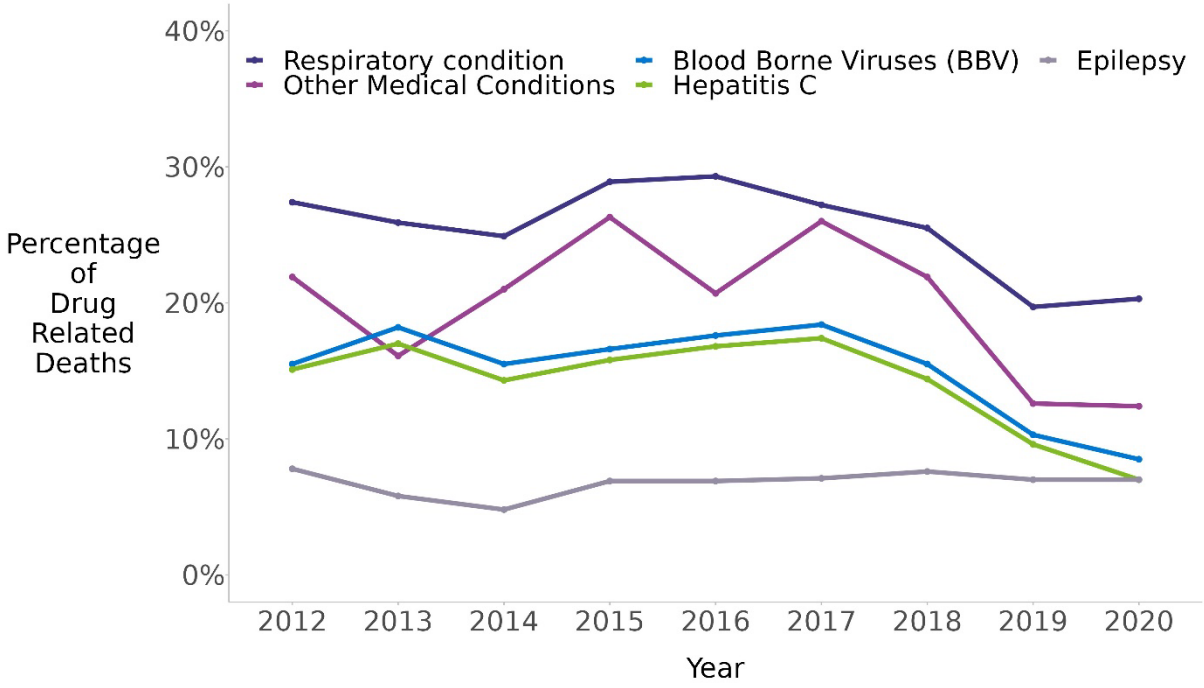
[10] People may have more than one medical or psychiatric condition recorded. For psychiatric conditions, bipolar disorder and schizophrenia are mutually exclusive diagnoses at any one time although people may have both in their lifetime, with revision over time. 'Drug addiction' and 'problem alcohol use' were removed from recorded conditions. Medical conditions wrongly recorded in the 'psychiatric conditions' variables (and vice versa) were transferred to the appropriate variables.

[11] Where information was available: includes those recorded as having no recent medical condition, blank cases are omitted from the denominator.

2012 to 2017 (ranging between 63% and 71%). Although the percentage of DRDs with a medical condition decreased in 2018 to 2020 (2018: 64% to 2020: 52%), this result should be considered with caution due to data quality issues.

Recorded experience of recent medical conditions was similar among intentional and non-intentional deaths. In 2020, 31 of the 56 (55%) people whose death was classed as intentional were recorded as experiencing a recent medical condition. This compared with 52% (655/1,267) of people in the non-intentional DRD cohort. The prevalence of most medical conditions was similar in both cohorts.

Figure 3: Medical Conditions Recorded in the Six Months Prior to Death (NDRDD: 2012-2020)[1] [2]



1. Medical conditions which are present in 5% or more cases in 2020 have been displayed in the chart.
2. The category 'Other' encompasses the following diagnoses: Eating Disorder; Migraine; Pancreatitis (not alcohol-related); Kidney Problems; Head Injury and cases recorded as ‘Other medical condition’ (e.g. fracture, cancers).

In 2020, the most common recent medical conditions amongst people who had a DRD were;

- respiratory conditions (20%, 268);
- 'other' medical conditions[12] (13%, 169);
- Blood Borne Viruses[13] (BBV) (i.e. hepatitis B, hepatitis C or HIV) (9%, 112);
- epilepsy (7%, 93); and
- liver disease (5%, 59) (Table 14).

Recording of respiratory disease in the six months prior to death was relatively stable from 2012 to 2018 (ranging between 26% and 29%). In 2020, respiratory disease was recorded in 20% (268) of DRDs (Table 14). Across the time series, and in 2020, females and those aged 45 years and over were more likely than males and younger age groups to have a recent respiratory condition recorded (data not shown in tables).

The prevalence of epilepsy has remained stable in the last 5 years (2015 and 2020: 7% each). Across the time series, reported prevalence was higher in those aged 35-44 years, but prevalence was similar across other age groups[14]. Recent recording of epilepsy was similar among females and males (7% each), but more common among

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[12] The category 'Other medical conditions' includes the following diagnoses: Eating Disorder; Migraine; Pancreatitis (not alcohol-related); Kidney problems; Head Injury; and cases recorded as 'Other medical condition' (e.g. fracture, cancers).

[13] While grouped together in Figure 3, the specific BBV infections are listed separately in Table 14. Hepatitis C would be fourth most common medical condition (2020: 7%, 93) in descending order, occurring after the grouped BBV category.

[14] Across time series: Respiratory disease: under 25s: 15%, 25-34: 15%, 35-44: 22%, 45 and over: 35%. Epilepsy: under 25: 5%, 25-34: 5%, 35-44: 9%, 45 and over: 7%.

people who injected drugs (2012-2020: 8%) than those not known to inject drugs (2012-2020: 6%) (data not shown in tables).

The recording of chronic pain has been relatively stable across the time period (2012: 2%, 2020: 3%), with the exception of an increase in 2016 (11%) (Table 14). Across the time series, recent chronic pain was recorded more often for females (6%) than for males (4%) and for those aged over 45[15] (data not shown in tables).

Across the time series there was a decrease in the recording of recent BBV conditions (2012: 16%, 2020: 9%). Injecting drug use (specifically sharing needles, syringes or other injecting equipment) is one of the main risk factors for acquiring BBV [4]. In each year and over the time series combined, a recent BBV condition was more likely to be recorded among people who injected drugs (2012-2020: 27%) than among those not known to inject drugs (2012-2020: 3%). Across the time period, BBV conditions were equally common among females (15%) and males (14%) but were more prevalent among older people[16] (due to higher injecting prevalence among older people who died of DRD) (data not shown in tables).

The prevalence of a subset of six medical conditions[17] identified in the NDRDD dataset and in hospital admission records (using the International Classification of Diseases Version 10 (ICD10) diagnosis coding scheme [5]) was used to examine multiple morbidity. On average, people who had a DRD in 2020 had 0.47 (of six) medical conditions recorded in the six months prior to death - a significant decrease from 2012 (0.74) (Table 15). In 2020, females had a significantly higher average number of recent conditions recorded (2020: 0.57) than males (2020: 0.43). Across the time series and in 2020, older people (35-44; over 45) had a significantly higher

[15] Recent chronic pain: Under 25: 1%, 25-34: 3%, 35-44: 5%, 45 and over: 7%.

[16] Recent BBV; Under 25: 2%, 25-34: 9%, 35-44: 17%, 45 and over: 17%.

[17] The six key medical conditions examined were respiratory disease, liver disease, epilepsy, cardiac problems, stomach problems and Blood Borne Viruses (Hepatitis B, Hepatitis C, HIV).

average number of recent conditions than younger people (Under 25; 25-34) (Table 15).

Based on acute hospital admission (SMR01) records for the ten years before death, the average number of key medical conditions associated with hospital admission for people who had a DRD in 2020 was 0.99 (Table 15), which was significantly higher than in 2012 (0.82). In 2020, females had a higher average number of recent conditions recorded (2020: 1.09) than males (2020: 0.94). The average number of medical conditions increased significantly with age[18].

In 2020, people who were known to inject drugs for 10 or more years (PWID>10) were admitted to hospital for a significantly higher average number of medical conditions (1.42) than people in groups with less severe/prolonged drug use (person not known to use drugs (NK-PWUD): 0.78; person known to use drugs (PWUD): 0.82; person known to inject drugs for less than 10 years (PWID ≤ 10): 1.12) (data not shown in tables).

Recent Psychiatric Conditions

In 2020, 46% of people who had a DRD experienced a specific psychiatric condition in the six months prior to death (Table 16). This percentage steadily increased between 2012 (57%) and 2016 (66%), before decreasing from 2018 to 2020. As discussed above, this result should be considered with caution due to data quality issues.

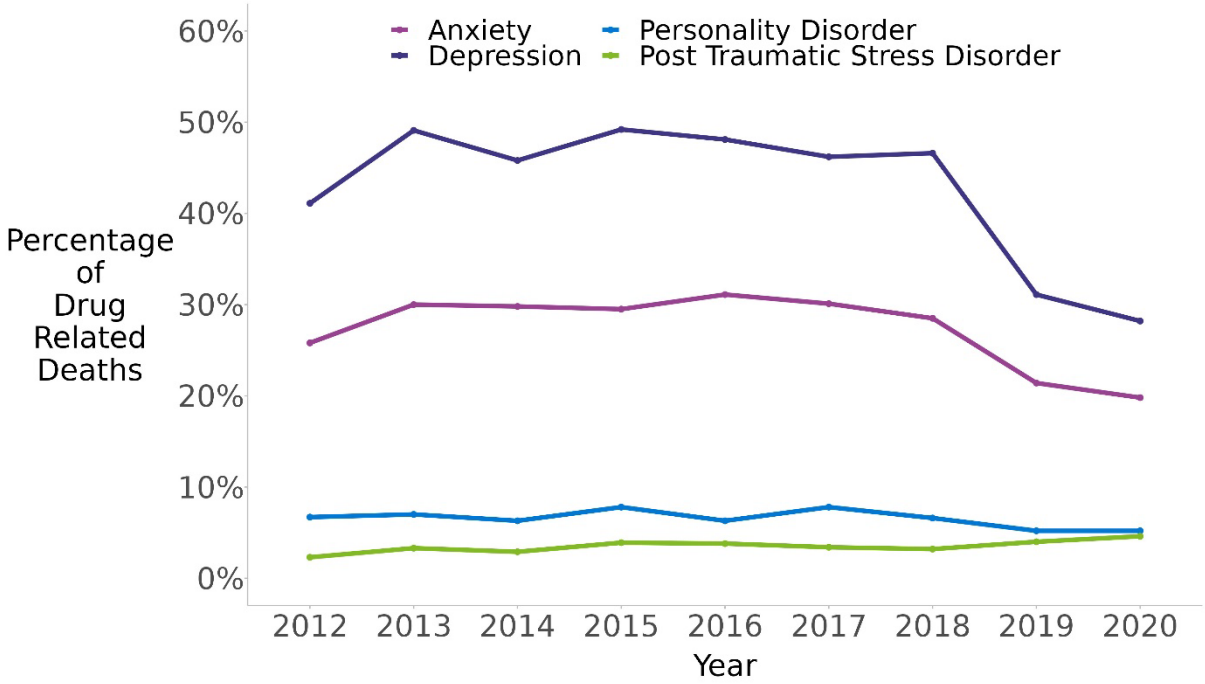
In 2020, where known, experience of a recent psychiatric condition was similar among intentional (31/57: 54%) and non-intentional DRDs (557/1,222: 46%). The prevalence of most psychiatric conditions was similar in both groups.

In 2020, 28% (361) of people who died of DRD were recorded as recently suffering from depression, 20% (253) from anxiety, 5% (66) from personality disorders and 5%

[18] Average number of medical conditions in 2020:
Under 25: 0.37, 25-34: 0.64, 35-44: 0.95, over 45: 1.25.

(59) from post-traumatic stress disorder. The prevalence of recent psychiatric conditions over time is shown in Figure 4.

Figure 4: Psychiatric Conditions Recorded in the Six Months Prior to Death (NDRDD: 2012-2020)[1 2]



1. Psychiatric conditions which are present in 3% or more cases in 2020 have been displayed in the chart.
2. The category 'Other psychiatric conditions' encompasses the following diagnoses: Agoraphobia; Autism/Aspergers; Self Harm; Adjustment disorder; obsessive compulsive disorder (OCD) and cases recorded as "Other psychiatric condition".

Recording of depression and anxiety as recent psychiatric conditions increased from 41% (210) in 2012 to 49% (340) in 2015 and from 26% (132) in 2012 to 31% (263) in 2016 respectively (Table 16). Across the time series, both conditions were more prevalent among females (Depression: 53%, Anxiety: 33%) than males (Depression: 36%, Anxiety: 24%). Depression was more prevalent among older people than

younger people[19]. Anxiety was most often recorded in people aged 25-34 (31%) but had similar prevalence across other age groups[20] (data not shown in tables).

The prevalence of a subset of seven psychiatric conditions[21] identified in the NDRDD dataset and in hospital admission records (using ICD10) was used to examine multiple psychiatric morbidity. On average, people who had a DRD in 2020 had 0.63 (of seven) psychiatric conditions recorded in the past six months, a significant decrease from 2012 (0.85) (Table 17). In 2020 and across the time period, females had a significantly higher average number of recent psychiatric conditions recorded (2020: 0.82, 2012-2020: 1.06) than males (2020: 0.56, 2012-2020: 0.77). Across the time series, those aged 25 years and younger had a statistically lower mean number of psychiatric conditions compared to the other age groups.

In 2020, the average number of psychiatric conditions recorded by length of drug use was lower for those not known to use drugs than those who use or inject drugs (NK-PWUD: 0.46; PWUD: 0.69; PWID ≤10: 0.62; PWID>10: 0.62).

Admission to a psychiatric hospital in the ten years prior to death was much less common than recent recording of a psychiatric diagnosis. People in the 2020 cohort had psychiatric inpatient stays in relation to an average of 0.19 of the seven conditions examined (Table 17). The prevalence of psychiatric admissions associated with these conditions has remained relatively constant over time, ranging between 0.19 and 0.25 conditions. In 2020, and across the time series combined, females who had a DRD (2020: 0.27, 2012-2020: 0.26) were admitted to hospital in relation to a higher number of psychiatric conditions than males (2020: 0.16, 2012-

[19] Recent depression: Under 25: 30%, 25-34: 40%, 35-44: 43%, over 45: 42%.

[20] Recent anxiety: Under 25: 25%, 25-34: 31%, 35-44: 27%, over 45: 24%.

[21] The seven psychiatric conditions examined were depression, anxiety, personality disorder, schizophrenia, psychotic episode, post-traumatic stress disorder and bipolar disorder.

2020: 0.19) (Table 17). There were no statistically significant differences in the mean number of conditions associated with psychiatric admissions recorded by age group.

Across the time series, people whose death was intentional had significantly more psychiatric conditions recorded in the six months prior to death than people in the non-intentional DRD cohort (1.02 and 0.85 respectively). However, the prevalence of psychiatric admissions associated with the outlined seven psychiatric conditions was similar among intentional and non-intentional deaths.

Recent Significant Events and Previous suicide attempts

In 2020, 41% (538) were recorded as experiencing a significant event in the six months prior to death (Table 18)[22]. This included 14% (187) recorded as suffering ill health or a recent diagnosis (medical or psychiatric), 7% (86) experiencing a bereavement, 6% (81) recently released from prison, and 6% (77) with recent homelessness or housing problems.

In 2020, a higher percentage of people (40% of known cases (23/57)) in the intentional DRD cohort had made a previous suicide attempt compared with those in the non-intentional DRD cohort (20% (251/1,278)) (data not shown in tables).

Domestic and Sexual Abuse

In 2020, 14% (190) of people who had a DRD (76% of whom were female) were reported to have been a victim of domestic violence at some point prior to death (Table 19).

Sexual abuse at some point prior to death was reported for 12% (162) of people who had a DRD in 2020 (of whom 56% were female) (Table 20). Although overall prevalence decreased from 2012 (18%; 90), the high percentage of 2020 cases with

[22] People may have had more than one significant event recorded.

'no known incidence' recorded (88%) could include cases where it was not possible to comprehensively check the records of the deceased.

Summary

- In 2020, 52% of people who had a DRD had a medical condition recorded in the six months before death. Respiratory illness (20%), blood borne viruses (9%), and epilepsy (7%) were the most commonly recorded recent conditions.
- In 2020, 46% had a recent psychiatric condition recorded in the six months prior to death. Depression and anxiety were the most common psychiatric conditions recorded in the six months prior to death.
- In 2020, 41% of people had experienced a significant event in the six months before death (most commonly, ill health or a recent diagnosis (medical or psychiatric)).
- 14% of people who had a DRD had experienced domestic violence prior to death in 2020. Sexual abuse at some point prior to death was recorded in 12% of DRDs in 2020.

Contact with Services[23]

Drug Treatment Services

Previous contact

In 2020, where known, three fifths of people who had a DRD (63%, 845) had been in contact with a drug treatment service at some point in their lives[24]. In the six months prior to death, 44% (589) were in contact with drug treatment services (hereafter referred to as 'recent') (Table 21).

Across the time series, both the percentage of people in contact with drug treatment services at some point (2012: 67%) and in recent contact (2012: 53%) has generally increased, reaching its peak in 2017 (73% contact at some point and 56% in recent contact).

In both 2020 and across the time series combined, the percentage of people aged 35-44 or 45 years and over who had been in contact with a drug treatment service in the six months prior to death was higher than among those aged 25-34 or under 25 years[25]. Similar significant differences were observed between age groups in relation to contact with drug treatment services at any time prior to death (Table 21).

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[23] Although the NDRDD collects information on contact within different time periods, this section emphasises contact within six months of death in order to illustrate which services might have had an impact in terms of preventing DRD.

[24] Known contact, at any time, with drug treatment services was lower in the intentional DRD cohort (7/57, 12%) than among non-intentional DRDs 838/1,278, 66%).

[25] Contact with drug treatment service in 6 months prior to death:
Under 25: 2020: 23, 30%; 2012-2020: 118, 27%;
25-34: 2020: 74, 29%; 2012-2020: 724, 44%.

In 2020, the percentage of females (49%) in contact with a drug treatment service in the six months prior to death was higher than for males (42%). Over the time series combined (2012-2020), the differences by sex in the percentage recently in contact were not significant (Female: 52% Male: 50%) (data not shown in tables).

In 2020, in the six months prior to their death;

- 31% (419) attended a specialist drug treatment service,
- 5% (67) had seen their GP for the purpose of drug treatment,
- 3% (40) attended psychiatric services for drug treatment,
- 1% (11) had been in contact with A&E services for drug treatment (Table 22).

There was a decrease over the time series in the percentage of people who had recently attended a specialist drug treatment service, consulted their GP, attended psychiatric services or had recent contact with A&E services (Table 22).

Contact at the time of death

In 2020, 40% (529) of people who had a DRD were in contact with services in relation to their problematic drug use at the time of death. People aged 35-44 or 45 years and over were more likely than younger people to have been in contact with a drug treatment service at the time of death[26] (Table 23). Over the time series and in

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35-44: 2020: 216, 52%; 2012-2020: 1,660, 60%.
45 and over: 2020: 276, 48%; 2012-2020: 1,384, 49%.

[26] In contact with drug treatment service at time of death:
Under 25; 2020: 16, 21%.
25-34; 2020: 60, 23%.
35-44; 2020: 197, 47%.
45 and over; 2020: 256, 44%.

2020, females were more likely than males to be in contact with a drug treatment service at the time of death.

In 2020, in cases where the date of last contact with drug treatment services was recorded, nearly one third (123, 23%) of people who were being treated for their problematic drug use had been seen within one week of death, while 63% (335) had been seen within one month of death (data not shown in tables).

Non-Drug Treatment Services

Among the 2020 cohort, 67% (898) had been in contact with services for reasons other than management of their drug use at some point in their lives. Recorded contact with services increased between 2012 (65%) and 2017 (72%). Recent changes in data should be considered with caution due to data quality issues.

In 2020, 41% (550) of DRDs in 2020 had contact with non-drug treatment services in the six months prior to death. This included 17% (227) in contact with mental health services and 15% (206) with social work services (Table 24). Recorded recent contact with mental health services decreased while contact with social work services increased from 2012 (24% and 11% respectively).

In 2020, among people who had been discharged from a psychiatric hospital in the six months prior to death, 66% (29/44) had also been in contact with mental health services during that time. This was higher than the percentage among people without a recent psychiatric hospital discharge (198/1291, 15%) (data not shown in tables).

Similar percentages of people whose death was intentional (24/57, 42%) and non-intentional (526/1,278, 41%) had recent contact with non-drug treatment services.

Hospital Stays[27]

General Acute Hospital Stays

In 2020, 85% (1,139) of people who had a DRD had been discharged from a general acute hospital in the ten years before death and 31% (410) had been discharged within six months of death (Table 26). The percentage of people with these 'long-term' or 'recent' hospital discharges was stable over time.

In 2020, those not known to have used drugs were less likely to have been discharged from a general acute hospital within ten years or six months of death when compared to those known to have used drugs for any length of time (Recent; NK-PWUD: 21%, PWUD; 33% Long term; NK-PWUD: 80%, PWUD: 87%).

Across the time series combined, there were clear differences between groups in admission to general acute hospitals. Females (88%) and older people (35-44; 86%, over 45; 88%) were more likely to have had a general acute hospital stay in the past ten years than males (84%) and younger people (under 25; 74%, 25-34; 82%). Similarly, recent general acute stays were more common among females (32%), and older people (35-44; 31%, over 45; 34%) than among males (30%) and younger people (under 25; 21%, 25-34; 27%) (data not shown in tables).

Among people hospitalised in the ten years before death, the median number of inpatient stays remained stable between 2012 (8) and 2020 (9). Across the time series combined, the median number of stays among females (8) and males (10) was similar. Median numbers of stays were not significantly different across age groups (under 25; 4, 25-34; 7, 35-44; 9, over 45; 10) (data not shown in tables).

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[27] NDRDD data was linked to PHS's acute (SMR01) and psychiatric (SMR04) hospital inpatient databases in order to examine the number of medical and psychiatric admissions, and time before death. Admissions to Scottish NHS hospitals in the ten years before death were included. Information on the time between last hospital discharge (general acute or psychiatric) and death is shown in Table 25.

Psychiatric Hospital Stays

In 2020, 23% (305) of people who had a DRD had been discharged from a psychiatric hospital within ten years, with 3% (44) having been discharged in the six months before death (Table 27). Both 'long-term' and 'recent' psychiatric hospital discharge decreased over the time period (2012; Long term: 28%, Recent: 6%) (data not shown in tables).

Across the time series, females (28%) and older people (35-44 and over 45; 27% each) were each more likely to have had a psychiatric hospital inpatient stay in the past ten years than their respective comparison groups (males (25%); younger people (under 25; 12%, 25-34; 25%) (data not shown in tables). Across the time series, those not known to have used drugs were less likely to been discharged from psychiatric hospital in the past ten years of death when compared to those known to have used drugs for any length of time (data not shown in tables)[28].

Among people hospitalised in the ten years before death, the median number of psychiatric hospital stays observed in 2020 was three (there was no clear trend over time). Across the time series combined, a similar number of median psychiatric stays were observed among females (3) and males (2) and across all age groups[29] (3, n= 1,278) (data not shown in tables).

In 2020, the median number of psychiatric hospital stays among people hospitalised in the ten years before death did not differ between the intentional (3, n= 57) and non-intentional cohorts.

[28] Discharge in 10 years (2012-2020): NK-PWUD: 17%, PWID: 26%, PWID ≤ 10: 27%, PWID>10+: 30%

[29] Median number of psychiatric hospital (2012-2020): Under 25: 2, 25-34: 2, 35-44: 3, 45 and over: 3

Criminal Justice System

Police Custody[30]

In 2020, 18% (206) of people who had a DRD had been in police custody in the six months prior to death (Table 28). Across the time series there was a decrease in recorded recent police custody (2012: 26%) (Table 28). In 2020, recent police custody was higher for males (164: 20%) than females (42: 14%).

In 2020, where the length of time between police custody release and death was known, 5% of DRDs (60) occurred within four weeks of a release from police custody. Further detailed information on the time between police custody and death is shown in Table 29.

Prison Custody[31]

Slightly under half of the 2020 cohort (505, 46%) had ever been in prison and 11% (118) had spent time in prison in the six months prior to death (Table 30). Experience of prison custody at any time (ranging from 46% to 52%) and within the six months prior to death (ranging from 11% to 14%) was similar across the time series.

Differences between groups were evident in relation to experience of prison custody. In line with the Scottish Government Prison Population Statistics [6], where males accounted for 96% and females 4% of the average daily sentenced prison population in Scotland in 2020/21, recent prison custody among DRDs was also more common among males (15%, 685) compared to females (5%, 90) across the time series (data

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[30] Continuing issues accessing police custody records meant that data related to the length of time between police custody release and death were recorded as unknown in over 10% of records in 2019 (15%) and 2020 (14%).

[31] Data related to the length of time between prison release and death were recorded as unknown in over 10% of records in 2019 (26%) and 2020 (18%).

not shown in tables). Similarly, experience of prison at any time prior to DRD was more common among males than females (2012-2020: 56% compared to 30%).

Prison custody in the six months prior to death differed between age groups[32], those aged 25-34 (22%) were most likely to have experienced recent prison stays. The age cohorts most likely to have ever experienced prison custody were 25-34 (54%) and 35-44 year olds (55%) compared to both younger and older age groups (Under 25; 32%, 45 and over; 42%) (data not shown in tables).

Recent prison custody was highest among people who injected drugs for less than 10 years (PWID ≤ 10: 18%, compared to NK-PWUD: 3%, PWUD: 10%, PWID>10: 14%) (data not shown in tables). People who were known to inject drugs for 10 or more years were more likely to have ever been in prison (PWID>10) (68%) than people with less severe/prolonged drug use[33] (data not shown in tables).

Further information on the time between prison custody and death is shown in Table 31. Information on the number and percentage of opioid-related deaths occurring within four or 12 weeks of release from prison custody (based on NRS's National Statistics) is also provided in PHS's **National Naloxone Monitoring Report** [7]. The percentage of opioid-related deaths that occurred within four weeks of prison release reached their lowest levels since monitoring commenced (1.6% in 2022).

Contact with Services Providing Specialist Drug Interventions

While drug treatment episodes and hospital admissions may directly address people's substance use, specialist interventions are also provided in prison and police custody. Non-drug treatment services also provide opportunities to

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[32] Recent prison experience (2012-2020) by age:
Under 25: 17%, 25-34: 22%, 35-44: 13%, 45 and over: 4%

[33] Ever been in prison (2012-2020)
NK-PWUD: 12%, PWUD: 41%, PWID ≤ 10: 60%, PWID>10: 68%

detect/address problematic drug use, promote overdose awareness and deliver harm reduction interventions (e.g. providing Take Home Naloxone).

In 2020, 65% (871) of people who had a DRD had been in drug treatment, in prison or police custody or discharged from hospital in the six months prior to their death. The percentage of people in contact with these services in the six months prior to death varied over the time series ranging from 65% to 76% (Table 32). However, some of these observations should be considered with caution due to potential data quality issues.

In 2020, the percentage of people who had an opioid-related death who were in contact with these services in the six months prior to death was 73% (Table 32). This was the lowest recorded across the time series. However, as above, this observation should also be considered with caution due to data quality issues.

Summary

- In 2020, three-fifths of people who had a DRD (63%) were in contact with a drug treatment service at some point in their lives.
- In 2020, 41% of people who died were in recent contact with non-drug treatment services (e.g. social work, housing). Social work contact among DRDs increased over time from 2012 to 2020.
- In 2020, 31% of people who had a DRD had been discharged from a general acute hospital and 3% had been discharged from a psychiatric hospital in the six months prior to death.
- In 2020, 18% of people who had a DRD had been in police custody in the six months prior to death. Eleven per cent of people who had a DRD had been in prison custody in the six months prior to death.
- In 2020, 65% of people (73% of those whose death was opioid-related) were in contact with a service with the potential to address their problematic drug use or deliver harm reduction interventions in the six months before death.

Circumstances of Death

Time[34]

Information on the distribution of Drug-Related Deaths (DRDs) by day and month is available in Tables 33 and 34. In 2020, the highest percentage of deaths occurred on a Sunday (16%) and in May and June (11%). Across the time period however, differences were not significant - neither the day of death nor the month of death were unequally distributed.

Place of Drug Use and Place of Death

In 2020, 72% (811) of people who had a DRD consumed the drugs present at death in their own home, while 21% (240) consumed them in another person's home (Table 37). The percentage of people who consumed drugs at home remained similar across the time series (2012: 70%).

Of the people who had a DRD in 2020, 66% (828) died in their own home and 18% (225) died in another person's home. Six per cent of people (78) died in hospital and 4% of people were recorded to have died in hotels or temporary accommodation (Table 38). The percentage of people who died in hotels and temporary accommodations has increased over time (2012: 1.2%) while the percentage of people who died in hospital has decreased over time (2012: 11%).

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[34] The number of DRDs by NHS Board for the NDRDD cohort are shown in Table 36 of the **Data Tables**. The crude mortality rates of DRDs by NHS Board are not discussed within this NDRDD report due to potential for misinterpretation / misleading results, as cases are either missing or have been excluded from the cohort for various reasons (see **Methods** section for further information). NRS provides rates per head of population and rates per estimated number of 'problem drug users' for Scotland and selected NHS Boards in their Accredited Official Statistics [1,2].

Scene of Overdose

Where known, another person was present at the scene of the fatal overdose in 51% (584) of DRDs in 2020. The percentage of DRDs where another person was present was roughly stable at between 50% to 60% over the time series since 2012 (53%, 258) (Table 39). In 2020, presence of another person in the same room was recorded in 23% (261) of DRDs, broadly similar to previous years (Table 40).

Across the time series, presence of another person at the scene of fatal overdose was much lower among people who lived alone all of the time (31%) than among those who did not (69%). Similarly, across the time period (2012-2020) presence of another person at the scene of a fatal overdose was less likely where the person was living in their own home (45%) than where they were not (60%) (data not shown in tables).

As discussed in the **Living Arrangements** Section, the percentage of people living in their own home and living alone all of the time increased alongside age group. Age group was also related to the percentage of fatal overdoses which were witnessed by another person (2020: 72% among people aged under 25, 64% for 25-34 year olds, 52% for 35-44 year olds, and 42% of those aged 45 and over) (Table 39). The changes in living circumstances which accompany ageing in this population appear to be associated with a decreased likelihood of effective intervention in the event of a drug poisoning or overdose.

In 2020 and across the time series, women had a higher percentage of fatal overdoses witnessed by another person (2020: 57%, 2012-2020: 59%) than males (2020: 48%, 2012-2020: 51%) (Table 39). Again, referring to the **Living Arrangements** Section, women were more likely to be living with a partner/spouse (27%) compared to men (14%) (across the time period (2012-2020) combined). It was in this group specifically where the highest percentages of overdoses were witnessed - based on data from across the time series, women (of all age groups)

who were living with a partner/spouse were most likely to have someone present at the scene of a fatal overdose[35] (data not shown in tables).

In 2020, an ambulance attended the scene of 81% (1,078) of DRDs - this figure was broadly consistent with previous years (Table 41). Among the 257 (19%) cases where an ambulance did not attend, there were 136 deaths (10%) where an ambulance was not required as the person was beyond medical intervention (Table 41). Where known, an attempt was made to resuscitate the individual in 40% (467) of cases - again, this figure was consistent over the time series (Table 42). In 54% (250) of these cases, resuscitation was attempted by ambulance staff (Table 43)[36].

Naloxone Availability and Use[37]

Naloxone is a medication which is used to reverse the effects of an overdose with opioids, such as heroin [7]. Take-home naloxone (THN) is supplied nationally by the **National Naloxone Programme**.

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[35] Person presents at scene of death in those living with spouse (2012-2020):
Male: 23%, Female: 39%
Person presents at scene of death in those living without spouse (2012-2020):
Male: 6%, Female: 12%.

[36] Multiple people (in differing roles) may have attempted to resuscitate the same individual.

[37] In 2010, questions were added to the NDRDD form to collect data on the availability of 'take-home' naloxone. However, an examination of 2010 and 2011 NDRDD data suggested that these questions were not solely measuring 'take-home' naloxone (as had been intended) but administration by a range of people including relatives, paramedics and hospital staff. The naloxone questions in the 2012 proforma were refined to specify administration of 'take home' naloxone provided directly to people at risk of an opioid overdose. Due to this change, naloxone availability and use from 2012 is not comparable to previous years.

In 2020, opioids (methadone, heroin/morphine or buprenorphine) were implicated in 1,056 of the 1,335 DRDs with known toxicology (79%). Whether or not a THN kit was available at the scene of death was known in only 25% (269) of opioid deaths. Of these cases, THN was reported to be available at the scene of 51 deaths (19%) and was administered on 39 occasions (77% of cases where available) (Table 44).

Previous THN supply was known in 50% (668) of cases in the 2020 cohort. Where known, 39% (257) of the 2020 cohort had been supplied with THN before death (Table 45). Known THN supply before death increased over time among the cohort (rising from 3% in 2012).

For 2020 deaths among people who had been supplied with THN, availability was known in 16% (42) of cases. Of these, naloxone was available at the scene of overdose in 52% (22) of 2020 DRDs (Table 45). Where supplied and available, THN was used in 68% (15/22) of deaths (data not shown in tables). In 2020, where naloxone was available but not used, apart from in two deaths either no other persons were present at the scene of overdose, or they were not in the same room (data not shown in tables).

Summary

- In 2020, 72% of people who died of DRD consumed the drugs in their own home and 66% died in their own home.
- Over half of DRDs (51%) occurred when others were present at the scene of the overdose. The percentage of deaths where others were present at the scene of overdose (and potentially able to intervene) was lower where people lived alone all of the time (31%) or were aged 45 or over (42%).
- Where known, take-home naloxone (THN) supply has increased over time (39% of 2020 DRDs). Among people who had previously been supplied with THN, 52% had naloxone available at the scene of death.

Toxicology Data

Information on the presence of drugs tested at post-mortem is collected as part of the NDRDD dataset. PHS also receives pathology information from National Records of Scotland (NRS) about whether substances were (i) implicated in the death and (ii) not implicated in the death.

The determination as to whether substances were implicated in, or potentially contributed to, death is complex and lies with the pathologist who will consider toxicology data in combination with pathological and circumstantial evidence before reaching their conclusion. The relationship between presence and implication is not straightforward. Some drugs are more potent than others and there is significant risk to life even at so-called 'therapeutic' levels, particularly when ingested with other drugs or alcohol. Conversely, other drugs are considered to pose less risk to life, even when an excess of the drug is ingested. See **Appendix 1** for further information about these data.

Drugs Present at Time of Death[38]

NDRDD toxicology results showing the drugs present in the body at the time of death (but not necessarily contributing to the death) indicated that the vast majority of DRDs (96%, 1,282) had multiple drugs present at the time of death. This was similar to previous cohorts (Table 46).

In 2020, etizolam was the drug most commonly found at post-mortem (62%, 826) following a sharp increase from 2012 (less than 1%). Methadone was the second most common drug found (54%, 722) and has been present in a relatively consistent

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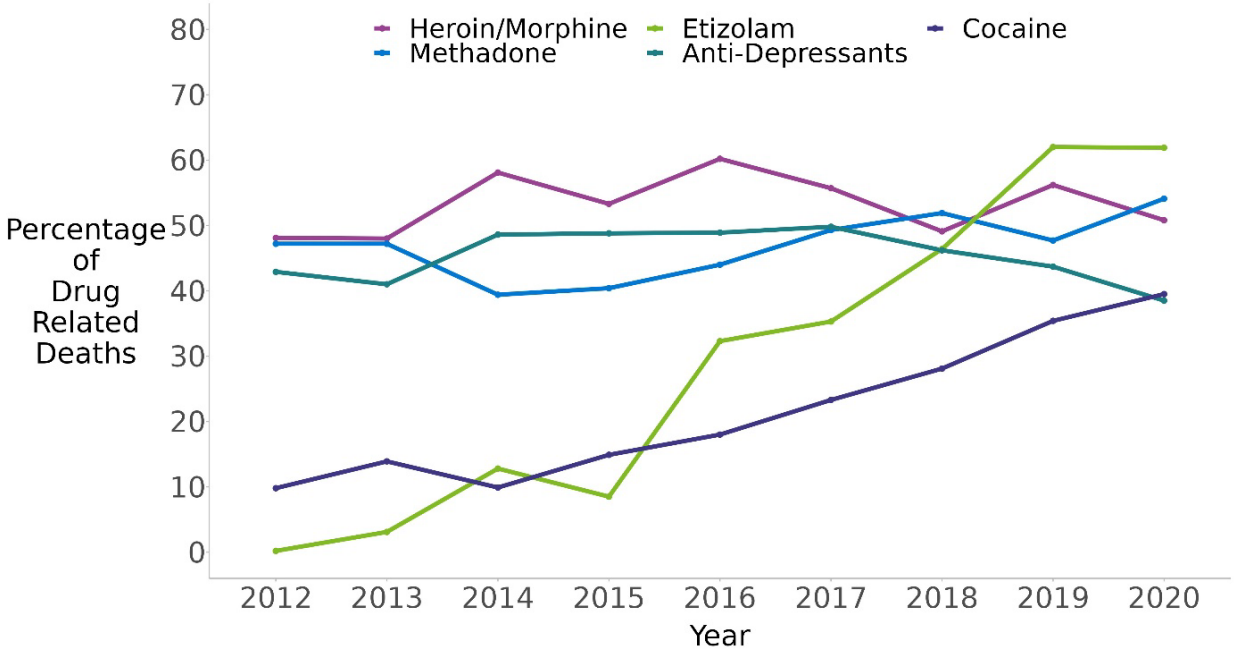
[38] During 2020, forensic toxicology laboratories in Scotland made the decision to exclude cannabis from their routine post-mortem screening process. This was because cannabinoids are highly unlikely to be implicated in DRDs. The impact of this change is that figures for cannabis presence/implication for 2020 and beyond cannot be compared with figures for years up to and including 2019.

percentage of deaths over time (Table 46 and Figure 5). In 2020, heroin/morphine was found at post-mortem in 51% of DRDs. Heroin/morphine presence increased from 2012 (48%) to 2016 (60%) but has decreased in recent years (Table 46 and Figure 5).

In 2020, the next most common drugs found present at post-mortem were cocaine (40%, 527) and anti-depressants (39%, 514). The percentage of deaths with cocaine present has increased from 2012 (10%). Anti-depressant presence increased from 2012 (43%) to 2017 (50%) but has since decreased (Table 46 and Figure 5).

Figure 5: Most Common Drugs Present at Post-mortem (NDRDD: 2012-2020)



Other drugs commonly found present at post-mortem in 2020 were alcohol (35%, 473), pregabalin (33%, 440), diazepam (26%, 342) and codeine[39] (23%, 313). The presence of alcohol post-mortem varied between 2012 and 2015 but has decreased in recent years. The percentage of DRDs with pregabalin or codeine present

[39] It is important to note that codeine may be present in post-mortem toxicology as a result of acetylcodeine being a naturally occurring impurity in illicit heroin rather than because of use as a prescribed or 'over the counter' medication.

increased over the time series (2012: pregabalin 2% and codeine 15%). However, codeine presence decreased from 2019 (31%) to 2020 (23%).

Between 2012 and 2015, diazepam was the drug most commonly found present at post-mortem in each NDRDD yearly cohort. In 2016, diazepam presence decreased significantly to 45% and has continued to decrease, reaching 26% in 2020. Diazepam was the eighth most common drug found present at post-mortem in 2020. Growth in the illicit market for novel benzodiazepine-type substances (hereafter called 'street benzos') such as etizolam is highly likely to be associated with the reduction in diazepam use in recent NDRDD cohorts. For further information, please refer to the **'Street Benzos'** section.

Several other drugs were regularly found in post-mortem toxicology data. Post-mortem prevalence of alprazolam (a benzodiazepine also known by the brand name Xanax®) was 5% in 2020, significantly lower than in 2018 (14%). Gabapentin has increased in prevalence over the time series (2012: 12%, 2020: 19%). The percentage of DRDs with buprenorphine present generally remained stable over the time series (2012: 2% and 2020: 9%). Strong opioids such as dihydrocodeine (16%, 208), oxycodone (3%, 38) and fentanyl (1%, 9) had similar prevalence over the time series (2012-2020).

Drug presence by sex

Drugs present at post-mortem by sex in 2020 are described below and shown in Table 47.

For females:

- Methadone (60%, 219) was the substance most commonly found at post-mortem, followed by etizolam (59%, 215), anti-depressants (52%, 191) and heroin/morphine (45%, 165).
- Methadone (60%), anti-depressants (52%), pregabalin (37%), gabapentin (23%) presence was higher among females than males.

For males:

- Etizolam (63%, 611), heroin/morphine (53%, 513), methadone (52%, 503) and cocaine (44%,426) were the substances most commonly found present at post-mortem.
- Heroin/morphine (53%), cocaine (44%) and codeine (25%) were all more likely to be found present at post-mortem among males than among females.

Drug presence by age

Drugs present at post-mortem by age group in 2020 are described below and shown in Table 48.

Among people aged under 25 years:

- Etizolam (58%, 45), heroin/morphine (58%, 45) and cocaine (55%, 43) were the substances most commonly found at post-mortem. All DRDs in this age group were found to have multiple drugs present at post-mortem (100%).
- The presence of ecstasy/MDMA (23%) was higher than in any other age group. The presence of anti-depressants (24%) was lower than in any other age group.

In people aged 25-34:

- Etizolam (70%, 181), heroin/morphine (53%, 137) and cocaine (50%, 129) were the substances most commonly found present at post-mortem.

In people aged 35-44:

- Etizolam (66%, 277), methadone (61%, 256) and heroin/morphine (52%, 218) were the substances most commonly found present at post-mortem.

In people aged 45 and over:

- Methadone (57%, 329), etizolam (56%,323) and heroin/morphine (48%, 278) were the substances most commonly found present at post-mortem.
- The presence of cocaine (26%) was lower than in any other age group.

In 2020, methadone presence was higher in the two older age groups (35-44 and 45 and over) than in the younger two groups.

Drug presence by type of DRD

In 2020, among people whose death was intentional, the drugs most commonly found present at post-mortem were: anti-depressants (25/57, 44%), heroin/morphine (19/57, 33%) alcohol (17/57, 30%), paracetamol (both 15/57, 26%), dihydrocodeine (14/57, 25%), diazepam (13/57, 23%) (data not shown in tables).

Drugs found present in a higher percentage of intentional DRDs compared with non-intentional DRDs were paracetamol (26% and 11%), anti-psychotics (18% and 6%) and tramadol (14% and 6%).

Drugs found present at post-mortem in a lower percentage of intentional DRDs than non-intentional DRDs were etizolam (5% and 64%), methadone (12% and 56%), heroin/morphine (33% and 52%) and cocaine (9% and 41%) (data not shown in tables).

A lower percentage of people whose death was intentional had multiple drugs present at the time of death (86% compared to 97%) (data not shown in tables).

Combinations of Drugs Present at Time of Death

In 2020, opioids (heroin/morphine, methadone or buprenorphine) and benzodiazepines (e.g. diazepam, etizolam) was the most common combination of drugs found at post-mortem (76%, 1,020) (Table 49). Heroin and benzodiazepines was the most common (48%, 642), followed by methadone and benzodiazepines (45%, 604). Benzodiazepines and alcohol were present in 33% of DRDs (448).

The combination of opioids (heroin/morphine, methadone, or buprenorphine) and cocaine became more prevalent over the time series, increasing from 6% (31) in 2012, to 31% (416) in 2020. This was also true for the combination of heroin and gabapentin or pregabalin, increasing from 7% (38) in 2012 to 19% (252) in 2020.

Certain drugs are known to prolong the heart's QT interval[40], potentially leading to a life-threatening ventricular arrhythmia called 'torsades de pointes'. Drugs known to be associated with QT prolongation should not be co-prescribed. A small percentage of the cohort had combinations of drugs known to prolong the QT interval (methadone and anti-psychotics or citalopram) present at post-mortem (2020: 4%, 59). There was some variation in the percentage of deaths where this combination of drugs was found present, but this has decreased in recent years[41].

In 2020, examining combinations of drugs present by sex, the combination of opioids (heroin/morphine, methadone or buprenorphine) and cocaine was more likely to be observed among males than females (Males: 35%, 336; Females: 22%, 80). Conversely, combinations including anti-depressants and dihydrocodeine were more prevalent among females than males (Males: 6%, 59; Females: 10%, 38) (data not shown in tables).

Drug combinations involving methadone and benzodiazepines were more likely to be observed among the older age cohorts (25-34, 35-44 and 45+) at the time of death than among younger people (under 25), potentially reflecting the higher percentage of older people in treatment[42] (data not shown in tables). Conversely, the combination of opioids (heroin/morphine, methadone, or buprenorphine) and cocaine

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[40] The time between the start of the Q wave and the end of the T wave in the heart's electrical cycle, representing depolarization and repolarization of the ventricles.

[41] Methadone and anti-psychotics or citalopram (2012: 2%, 2013: 7%, 2014: 8%, 2015: 8%, 2016: 8%, 2017: 8%, 2018: 8, 2019: 6%).

[42] Methadone and benzodiazepines (under 25: 13, 18%; 25-34: 100, 39%; 35-44: 215, 51%; 45+: 276, 48%)

was more likely to be observed among age cohorts younger than 45 at the time of death than among older people (45+)[43] (data not shown in tables).

Drugs Implicated in Death

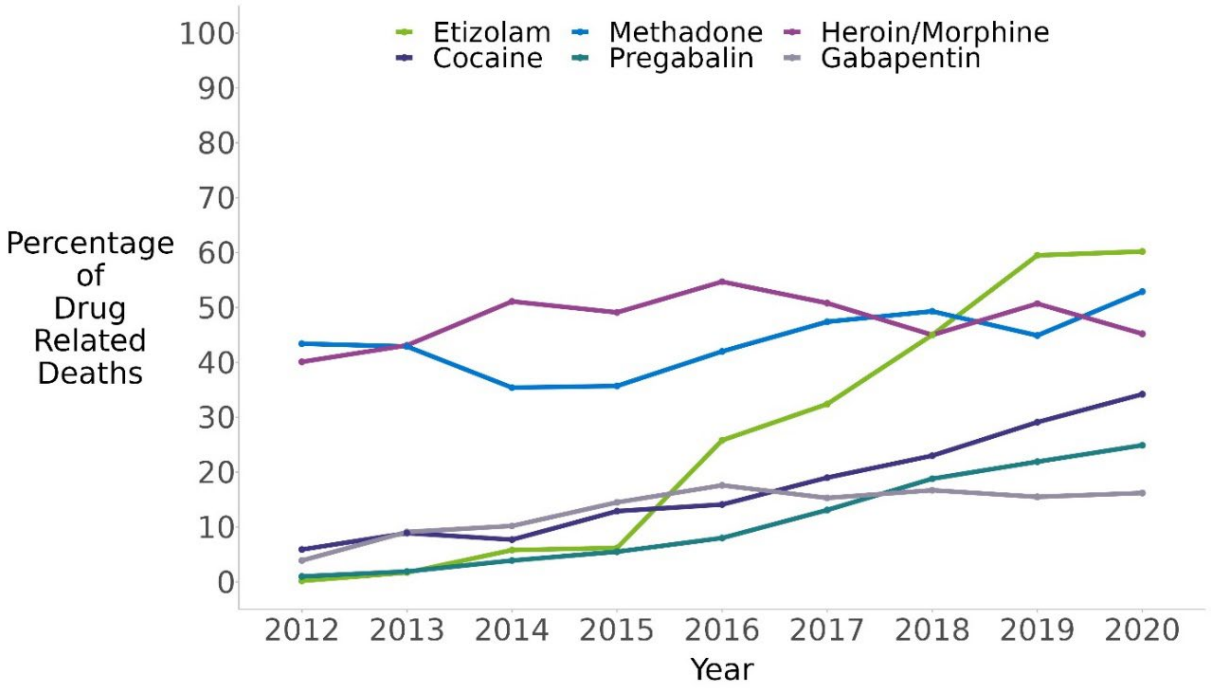
Additional information on drugs implicated in, or potentially contributing to, death was supplied by NRS and available for all NDRDD DRDs (1,335) in 2020.

Multiple drugs were implicated in 89% (1,199) of DRDs. Multiple drug implication has increased over time and was significantly higher in 2020 than in any previous year (Table 50).

In 2020, opioids (methadone, heroin, morphine or buprenorphine) were implicated in 1,056 DRDs (79%). This was the highest number and percentage of opioid implicated deaths recorded. Opioids have been implicated in at least 70% of DRDs in each year since 2012 (Table 50).

[43] Opioids and cocaine (under 25: 32, 42%; 25-34: 98, 38%; 35-44: 162, 39%; 45+: 124, 21%).

Figure 6: Most Common Drugs Implicated in Death (NDRDD/NRS: 2012-2020)



In 2020, etizolam was the drug most frequently implicated in deaths (60%, 804). Etizolam presence has increased sharply since 2012 (less than 1%). The next most commonly implicated drugs were methadone (53%, 706), heroin/morphine (45%, 603), cocaine (34%, 456), pregabalin (24%, 333) and gabapentin (16%, 216) (Table 50 and Figure 6).

The main changes in drug implication over the time series have been:

- Increases in 'street' benzodiazepine implication. Etizolam implication increased across the time series from 6% of DRDs (with implication data) in 2015, to over half of DRDs (60%) in 2020 (becoming the most commonly implicated drug). The implication in death of other street benzos such as diclazepam (11% in 2016, 1% in 2020) and prescribable benzodiazepines such as diazepam (28% in 2012, 14% in 2020) decreased over the time series.

- Heroin/morphine implication varied considerably over the time series, ranging between 40% and 55% each year. In 2020, 45% of DRDs had heroin/morphine implicated.

- The percentage of DRDs where cocaine was implicated has increased across the time series. 2020 saw the highest number of cocaine implicated deaths recorded (34%).

- There were gradual increases in gabapentinoid implication over time. Gabapentinoids (gabapentin and pregabalin) are prescription drugs used to treat epilepsy and chronic pain. However, there is a significant illicit market for these controlled drugs, which are known to 'potentiate' or enhance the effects of opioids [15]. In 2020, gabapentinoids were implicated in 502 deaths (38% of cases). Opioids (heroin/morphine, methadone or buprenorphine) were also implicated in 86% (429) of these deaths (data not shown in tables).

- Alcohol implication in DRDs decreased over the time series from 18% in 2012 to 13% in 2020.

Drug implication by sex

Drugs implicated in 2020 DRDs by sex are described below and shown in Table 51.

For females:

- Methadone (59%, 216), etizolam (57%, 211) and heroin/morphine (39%, 143) were most commonly implicated in DRDs.

- Methadone (59%), gabapentin (20%), dihydrocodeine (16%), anti-depressants (11%) and tramadol (7%) implication were all higher among female DRDs compared to male DRDs.

For males:

- Etizolam (61%, 593) was most commonly implicated in death, followed by methadone (51%, 490) and heroin/morphine (48%, 460).

- Heroin/morphine (48%) and cocaine (38%) and implication were each more prevalent among male DRDs than female DRDs.

Drug implication by age

Drugs implicated in 2020 DRDs by age group are described below and shown in Table 52. The most commonly implicated substances differed between age groups.

Among people aged under 25:

- Heroin/morphine (54%), etizolam (53%) and cocaine (46%) were the most commonly implicated substances.
- Ecstasy/MDMA (21%) was implicated in a higher percentage of deaths in under 25s than in other age groups.
- Pregabalin (12%) implication was lowest in persons aged 25 and under compared to other age groups.

For those aged between 25 and 34:

- Etizolam (68%), heroin/morphine (48%) and methadone (46%) were the most commonly implicated substances.

For those aged between 35 and 44:

- Etizolam (65%), methadone (60%) and heroin/morphine (47%) were the most commonly implicated substances.

Among people aged 45 and over:

- Methadone (55%), etizolam (54%) and heroin/morphine (42%) were the most commonly implicated substances.
- Cocaine (23%) implication was lowest in persons aged 45 and over compared to other age groups.

Drug implication by type of DRD

Among people whose death was intentional, the drugs most frequently implicated in death were; anti-depressants, dihydrocodeine, heroin/morphine (all 13/57, 23%), other drugs (12/57, 21%), gabapentin (11, 19%) and codeine (9, 16%).

Different patterns of drug implication were observed between these groups. Drugs which were implicated in a higher percentage of intentional DRDs than non-intentional DRDs were anti-depressants (23% and 7%), dihydrocodeine (23% and 11%) codeine (16% and 3%), and tramadol (12% and 5%). Drugs which were implicated in a lower percentage of intentional DRDs than non-intentional DRDs were etizolam (5% and 63%), methadone (12% and 55%), heroin/morphine (23% and 46%), and cocaine (4% and 35%) (data not shown in tables).

Relative drug implication[44]

Among drugs more commonly seen in DRDs, methadone was implicated in 98% (706/722) of DRDs where present, followed by etizolam (97%: 804/826) and heroin/morphine (89%: 603/678). Despite only being present in a small number of cases in 2020, alprazolam (5%, 72) was implicated in over 90% of DRDs where found present at post-mortem (Table 53).

In contrast, although alcohol and anti-depressants were among the drugs most commonly found at post-mortem, they were implicated in less than half of deaths where present (alcohol; 36% (170/473); anti-depressants: 19% (99/514)).

[44] To calculate drugs implicated as a percentage of drugs present toxicology data for drugs present and drugs implicated being available for 1,335 people in 2020.

'Street' Benzodiazepines

The Psychoactive Substances Act [8] came into force across the United Kingdom in May 2016, prohibiting the production, sale and supply of psychoactive[45] substances (other than those specifically exempted by the Act). This legislation was a direct response to increasing diversity within global drug markets and challenges in restricting the availability of 'Novel' Psychoactive Substances (NPS)[46] via the Misuse of Drugs Act 1971 [9].

There were 884 (66%) NPS-related[47] DRDs in 2020. Nearly all (98%, 868) were related to benzodiazepines (Table 54) and involved consumption of multiple substances (99.7% - data not shown in tables). This represented a significant increase in the number of NPS-related deaths since 2015 (84)[48], and the percentage that were related to benzodiazepines (2015: 82%). Due to these changes in the

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[45] Defined by the Act [10] as anything which 'by stimulating or depressing the person's central nervous system...affects the person's mental functioning or emotional state'.

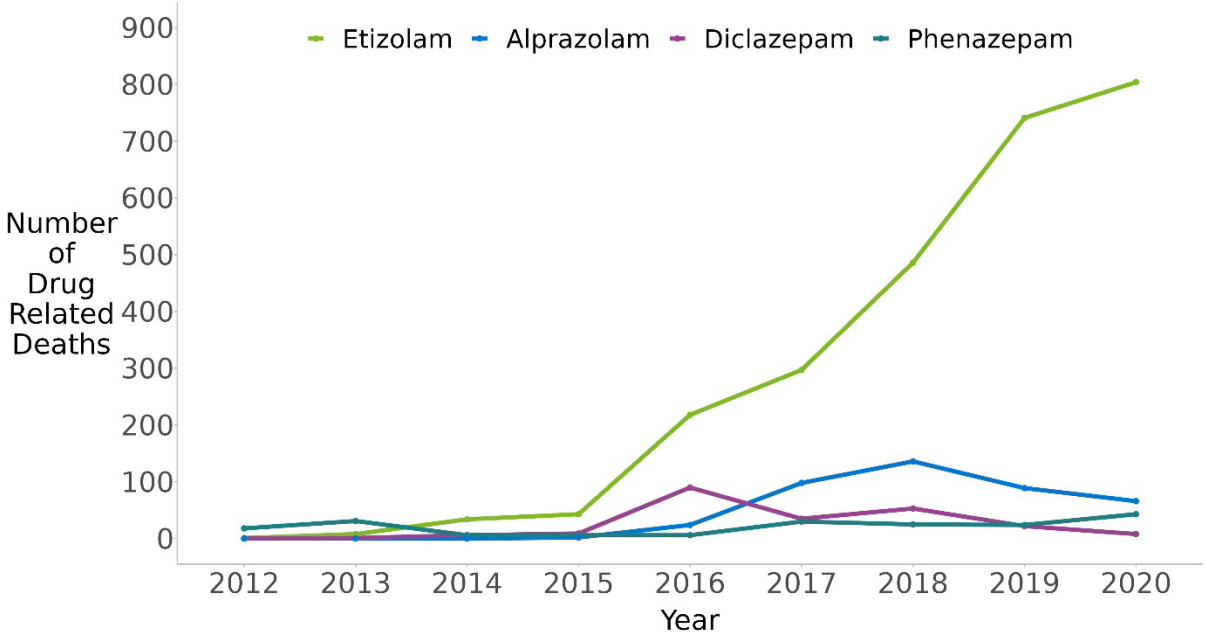
[46] Although referring to the same drugs, the term 'NPS' has been used in NDRDD reports in preference to 'Legal Highs' because the latter term failed to recognise a) changes in the controls applied to relevant substances and b) the differential effects of those substances.

[47] 'NPS-related' deaths include cases where NPS were present or implicated. As the NDRDD cohort is based on the NRS definition, cases where only uncontrolled NPS were involved are also excluded from this analysis. However, such cases are rare and the NPS-related deaths reported by NRS were largely a subset of the DRDs on which National Statistics were published. Details of the NPS definition and inclusion criteria used by NRS are available in **Annex E** of the NRS report on 2020.

[48] Number and percentage of NPS-related DRDs; 2015: 103, 15%, 2016: 366, 43%, 2017: 368, 40%, 2018: 535, 50%, 2019: 803, 64%, 2020: 884, 66%

number and type of substances involved in NPS-related deaths, this section now focuses exclusively on NPS or 'street' benzodiazepines[49].

Figure 7: Most Common 'Street' Benzodiazepines Implicated in Death (NDRDD/NRS: 2012-2020)



Among the 868 DRDs in 2020 where 'street' benzodiazepines were present at post-mortem, 97% (844) had these benzodiazepines implicated, with all but four of these deaths involving multiple drugs. In 2020, the most frequently implicated 'street' benzodiazepines were etizolam (93%, 804), alprazolam (8%, 66), phenazepam (5%, 43) and diclazepam (1%, 8) (Figure 7).

In 2016, although etizolam (81%, 218) was the most common 'street' benzodiazepine implicated in death, other substances such as diclazepam (33%, 90) were more prevalent than in 2020. Changes to both international and national legislation have affected the availability and prevalence of compounds, leading to significant fluctuations in the 'street' benzodiazepine market over recent years. While etizolam became increasingly prevalent during the time period from 2016 to 2020, it has now

[49] In Scotland, many ‘street' benzodiazepines contain substances such as etizolam, which are unlicensed analogues of prescribable benzodiazepines like diazepam.

been prohibited internationally, leading to bromazolam emerging as the primary 'street' benzodiazepine of concern in deaths registered in 2022 [16].

In 2020, among people who had a 'street' benzodiazepine implicated in death, the non-benzodiazepine drugs most commonly co-implicated were methadone (560), heroin (429), cocaine (316) and pregabalin (247) (data not shown in tables). Almost half (48%, 404) were in contact with a drug treatment service at the time of death and 41% (342) were in receipt of a methadone prescription prior to death (similar across the time series - data not shown in tables). 'Street' benzodiazepines were implicated in a lower percentage of non-intentional DRDs than intentional DRDs (0.4% (3) vs 99.6% (841)) (data not shown in tables).

Summary

- In 2020, almost all (96%) DRDs occurred after the consumption of multiple substances.
- Opioids (methadone, heroin, morphine or buprenorphine) were implicated in over three quarters (79%) of DRDs in 2020.
- Etizolam (60%), methadone (53%) and heroin/morphine (45%) were the substances most commonly implicated in deaths in 2020.
- Gabapentin and pregabalin implication increased over time, potentially due to their use to enhance the effects of opioids. In 2020, gabapentin or pregabalin were implicated in 502 deaths, 86% (429) of which were also opioid-related.
- Diazepam presence at post-mortem has decreased sharply from 2015 (65%) to 26% in 2020, while presence of etizolam (a 'street' benzodiazepine) has increased sharply from 2015 (9%) to 2020 (62%).

Prescribing[50]

People who use drugs tend to have higher rates of morbidity and mortality than the rest of the population [17]. As a result, rates of prescribing for medical and psychiatric conditions are likely to be higher than in the general population. The prescribing burden for this group is additionally increased by Opioid Substitution Therapy (OST) prescribing – the dominant form of treatment for opioid dependence.

In the toxicology findings (**Toxicology Data**), prescribed drugs (e.g. methadone, buprenorphine, diazepam, gabapentin, pregabalin, anti-depressants) were often present and/or implicated in deaths. Use of illicit substances alongside prescribed medications can increase drug toxicity and the risk of adverse health-related outcomes (particularly for people prescribed OST, where higher risks of overdose and blood borne virus infection have been documented [11]).

This section describes the extent of prescribing among people who had a DRD and includes comparisons with the presence of prescribed drugs at post-mortem, highlighting potential issues associated with compliance and/or diversion of prescribed drugs. Deaths among people prescribed OST are described in detail, to determine the extent of concurrent prescribing and/or illicit drug use.

OST prescribing

Consistently less than half of people whose death was opioid-related[51], were in contact with drug treatment services at the time of their death (35% in 2012 and 40%

[50] Difficulties with NDRDD data collection of prescribed OST information (i.e. supervision status, length of time in receipt) resulted in high levels of unknowns (above 10%). The percentage of unknowns have been listed in the data tables.

[51] Since 2011, NRS has supplied data on drugs implicated in death. Opioid-related deaths are those where heroin, morphine, methadone or buprenorphine were

in 2020) (Table 23). However, an increasing percentage were prescribed an OST at the time of death (2012: 27%, 2020: 37%). Among opioid-related deaths, the percentage of people prescribed an OST at the time of death increased from 34% in 2012 to 46% in 2020 (Table 10).

As discussed in Sections **Substitute Prescribing** and **Drug Treatment Services**, OST prescription and drug treatment contact at the time of death were both more common among females and people in older age cohorts (35-44 and 45+). Therefore, demographic changes over time may partly explain the increasing number of deaths 'in treatment'.

However, the high prevalence of specialist drug treatment contact and OST prescribing prior to death also raises questions about the role of treatment interventions in protecting against adverse health outcomes. Aspects of treatment such as OST dosing and adherence are explored here, along with the potential impact of non-compliance with treatment.

OST dosage and supervision

In 2020, 62% (292) of those receiving methadone or buprenorphine (with or without naloxone) were prescribed a normal daily therapeutic dose (methadone: 60-120mg, buprenorphine: 12-16mg) as recommended by the 'Orange Guidelines' [11]. Around one third (34%, 161) were prescribed a lower than recommended dose and only 4% (17) were prescribed a higher than recommended dose (Table 55). While the percentage prescribed a normal daily therapeutic OST dose has fluctuated over the time series, it has not been lower than 50% of relevant cases in any year.

In 2020, the mean daily methadone dose was 68.8mg, which was within the average range over the time series (between 66mg and 71mg). In 2020, the mean daily

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implicated, or potentially contributed to death. For years before 2011, presence of those drugs in the body at post-mortem is used as a proxy indicator.

buprenorphine dose was 13.3mg (mean buprenorphine dose varied considerably over the time series due to the low number of cases observed each year) (Table 55).

Mean daily methadone dosages were analysed by sex and age group. In 2020, the average doses for males (69.3ml) and females (67.6ml) were similar. The 2020 averages were also roughly the same as the average daily methadone doses across the entire time series (2012-2020) (Males: 67.9ml; Females: 68.8ml). The average daily methadone dose differed between age groups. In 2020, people under 25 years had a significantly lower average daily methadone dose than three older age groups[52] (data not shown in tables). Similarly, across the time series, under 25s had a significantly lower dosage than the 35-44 and 45 years and over age groups[53] (data not shown in tables).

Since 2012, over three quarters of OST prescriptions among people who had a DRD had been supervised[54]. In 2020, where known, 71% (279) of OST prescriptions were supervised, including 72% (267) of methadone prescriptions (Table 56).

Where the length of time prescribed OST was known, 68% (234) of people who had a DRD in 2020 and were prescribed OST had received their medication for one year or more and 22% (74) had received it for over ten years. The percentage of people prescribed an OST drug for less than one year followed an increasing trend from 2012 (25, 19%) to 2020 (109, 32%) (Table 57).

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[52] Average daily methadone dose 2020;
2020; under 25: 40.0ml, 25-34: 65.8ml, 35-44: 72.5ml, 45 and over: 66.6ml.

[53] Average daily methadone dose 2012-2020;
2012-2020; under 25: 52.6ml, 25-34: 65.3ml, 35-44: 69.5ml, 45 and over: 68.1ml.

[54] 'Supervision' may cover a wide range of scenarios from daily (7 day) supervised consumption to supervised consumption once per week on the day of collection only. Recording of OST supervision in NDRDD is based on the last dose dispensed prior to death.

OST compliance and effectiveness

In 2020, 97% (435) of those prescribed methadone had methadone present in their body at post-mortem, compared to 32% (287/887) not prescribed methadone. While it is not possible to ascertain if people had consumed illicit methadone in addition to their prescribed methadone, presence among prescribees was similar across the time series (ranging between 95%-100%) (data not shown in tables).

Methadone presence among those not prescribed is likely to vary according to the availability of illicit opiates. Therefore, 30% of non-prescribees had methadone present at post-mortem in 2012 (during the heroin drought, [18]), which was followed by a period of relative stability between 2013 and 2019[55]. Methadone implication in those not prescribed methadone at time of death was higher in 2020 (32%) than in the previous five years.

In 2020, buprenorphine presence was recorded at post-mortem in 76% (34/45) of people prescribed this drug at the time of death and in 7% (87/1,290) of non-prescribees. Over the entire time series (2012-2020), 77% of prescribees and 5% of non-prescribees had buprenorphine present at post-mortem (data not shown in tables). Because of the smaller number of people prescribed buprenorphine, there was considerable variation between years in the percentage of deaths where it was present at post-mortem. However, in 2020 (76%) and across the time series (77%), the percentage of buprenorphine prescribees with buprenorphine present at post-mortem was significantly lower than the equivalent percentages among methadone prescribees (2012-2020: 96%, 2020: 97%).

There was clear evidence of illicit opioid use among people who died while prescribed OST. In 2020, 49% (241) of those in receipt of an OST had heroin/morphine present at post-mortem, compared to 52% (437) not prescribed OST. However, the percentage of OST prescribees who had heroin/morphine

[55]Methadone implication in those not prescribed methadone:
2012: 30%, 2013: 28%, 2014: 21%, 2015: 18%, 2016: 18% 2017: 21%, 2018: 23%, 2019: 21%, 2020: 32%

present at death decreased from 2016 (61%; the highest recorded) (Table 58). In 2020, the percentage of people who had etizolam and pregabalin present at post-mortem was higher among people in receipt of an OST than among those who were not[56] (Table 58).

In 2020, heroin/morphine was present at post-mortem in 62% (28/45) of people who were prescribed buprenorphine at the time of death - higher than among people prescribed methadone at the time of death (48%, 213/448). Heroin/morphine presence was also higher among buprenorphine prescribees across the time series (buprenorphine: 145/197, 74%; methadone: 1,258/2,552, 49%) (data not shown in tables).

Methadone-Implicated Deaths

This section builds on the previous section, specifically addressing the role of methadone in DRDs and the extent to which dosing regimens may have contributed to deaths or, conversely, whether DRDs occurred in spite of safe prescribing practices.

Methadone is the most commonly **prescribed OST drug in Scotland** and was implicated in 53% (706) of DRDs registered in Scotland in 2020 - the highest number and percentage in the time series from 2012 to 2020. Due to its prevalence in DRDs, the risks associated with methadone prescribing are a matter of ongoing concern. However, it is not possible to fully understand the harms associated with methadone prescribing in the context of DRDs. While the previous section described that OST prescribing among those who died was generally supervised and within recommended dose ranges, it was also clear that many prescribees consumed illicit opioids prior to death (potentially including additional methadone ‘on top’ of their

[56] Prescribed an OST (2020); etizolam: 73% and pregabalin: 48%
Not prescribed an OST (2020); etizolam: 55% and pregabalin: 24%.

prescription) and that methadone-related deaths often occurred among non-prescribees.

In addition to the high percentage of methadone-implicated deaths, 2020 also saw a substantial increase in the percentage of these deaths that occurred among people not prescribed methadone at the time of death. Forty per cent of methadone-implicated deaths in 2020 were among non-prescribees - significantly higher than in previous years (2016: 26%, 2017: 27%, 2018: 27%, 2019: 28%).

The COVID-19 pandemic occurred in early 2020, leading to the introduction of wide-ranging measures to limit the spread of the virus. Restrictions on social contact, public gatherings and changes to working patterns and the availability of services including variations in OST prescribing practices (for example, lengthier prescriptions and the suspension of supervision requirements in some NHS Boards, following patient risk assessment) were introduced at this time. Further analysis was conducted to identify if the increase in methadone-implicated deaths occurred during the time period when these measures were in force.

The analysis of methadone-implicated mortality in 2020 was refined by splitting the year into two halves based on date of registration of death. Registrations in the first half of 2020 included deaths that occurred in late 2019 or the first six months of the year (January 2020 to early June 2020), reflecting the pre-pandemic part of the year and the first months of the pandemic. Registrations in the second half of 2020 encompassed some deaths occurring in late spring and the latter six months of 2020 (July to early December) when measures to control the spread of COVID-19 had become more established.

A higher percentage of deaths registered in the second half of 2020 (57%, 363/633) had methadone implicated compared to deaths registered in the first half (49%, 343/702) (data not shown in tables). The number and percentage of people prescribed methadone who had it implicated in death was roughly the same in the first (206, 94%) and second halves (219, 96%) of 2020. However, methadone-implicated deaths among those not prescribed methadone were more prevalent in deaths registered in the second half of 2020 (36%) compared to the first half (28%) (data not shown in tables). It is plausible that, in the context of COVID-19 mitigation

measures, the availability of opioids became increasingly restricted during 2020 and increasingly focused on the use (and potential diversion) of prescribed methadone.

Deaths among people prescribed methadone

In 2020, three in five people for whom methadone was implicated in death (60%, 425/706) were in receipt of a methadone prescription prior to death (Table 59)[57]. Their average age was 45 years and 68% were males (age and sex were similar in the first and second halves of 2020 - data not shown in tables). These people were generally on long-term, supervised prescribing regimens within recommended dose guidelines:

- In 2020, where supervision status was known, 71% (249) received their prescription on a supervised basis - a lower percentage than in any year since 2014 (Table 60). A lower percentage received their prescription on a supervised basis in the second half of 2020 (66%, 117) compared to the first half of 2020 (76%, 132).

- In 2020, where the length of time of a prescription was known, 70% (209) had been prescribed methadone for one year or more (Table 61). The percentages were similar in the first (104, 66%) and second halves (105, 75%) of 2020 (data not shown in tables).

- In 2020, where the dosage was known, 64% (262) were prescribed a normal daily therapeutic dose (60-120mg) [11]. Around one third (33%, 137) were prescribed less than the recommended dose, but it is not possible to determine if these people were in the process of having their dose increased to a recommended therapeutic dose (Table 62). There was little variation in these percentages in the first and second halves of 2020.

[57] The percentage of methadone-implicated deaths among prescribees was the same in the first (60%, 206/343) and second (60%, 219/363) halves of 2020.

- In 2020, 97% (413) of methadone-implicated deaths in those prescribed methadone had other drugs implicated at post-mortem. The most common drugs implicated alongside methadone were etizolam (76%, 314), heroin/morphine (42%, 172), pregabalin (41%, 170), cocaine (33%,137) and gabapentin (21%, 86). The percentage of methadone-implicated deaths where these other drugs were also implicated in death increased over the time series (etizolam: 0% - 76%, heroin/morphine: 34% - 42%, pregabalin: 2% - 41% and cocaine: 5% - 33%) (data not shown in tables).

Deaths among people not prescribed methadone

In 2020, two in five people for whom methadone was implicated in death (40%, 281/706) were not in receipt of a methadone prescription prior to death (Table 59). Some interesting differences were evident when comparing this group to those who were prescribed methadone.

- Among methadone-implicated deaths in 2020, people who were not prescribed methadone were, on average, younger (41 years) than those who were prescribed methadone (45 years). Similar differences were observed across the time series (except for 2014 and 2016), with non-prescribees typically around 3.5 years younger than prescribees. Seven in ten (71%) of non-prescribees were male, with little variation observed in recent years. Average age and sex were similar in the first and second halves of 2020 (data not shown in tables).

- In 2020, where known, 21% (60) of non-prescribees whose death had methadone implicated were in contact with a drug treatment service at the time of death, potentially for non-opioid treatment or in receipt of an alternative OST medication such as buprenorphine. Excluding those already in contact, around half (49%) of non-prescribees whose death had methadone implicated had been in contact with a drug treatment service at some point in their lives and 13% had been in recent (within six months) contact. This group had more limited experience of treatment than the

remainder of the 2020 NDRDD cohort (among which 64% were ever in contact and 48% were in recent contact with services).

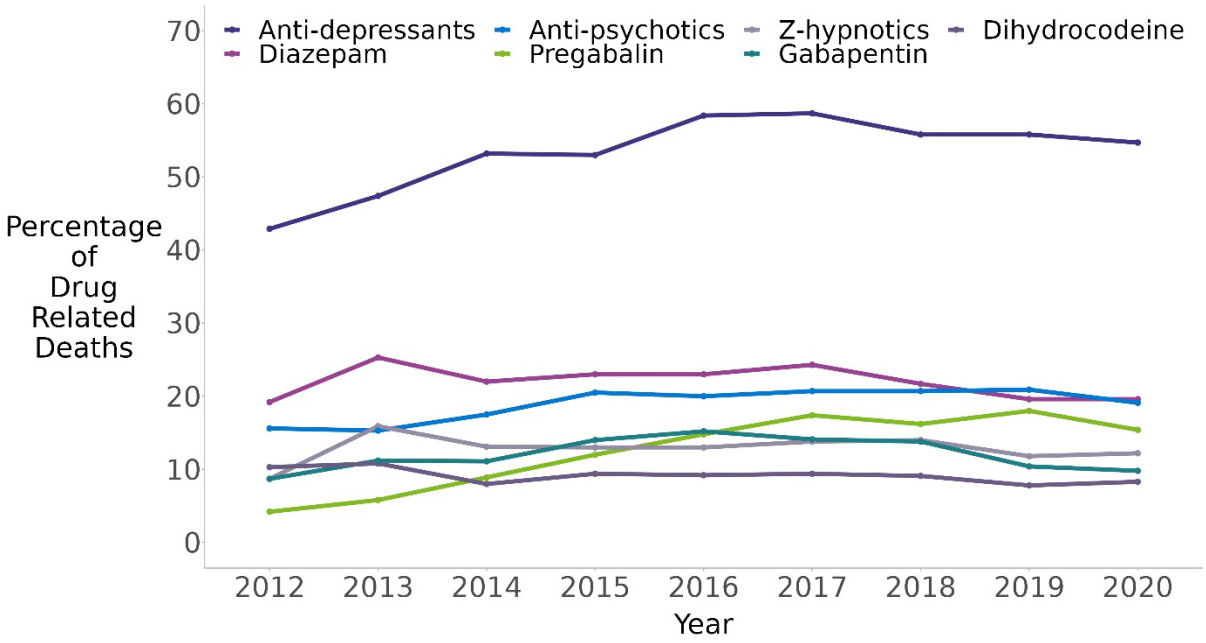
- In 2020, 98% (275) of methadone-implicated deaths in those not prescribed methadone had other drugs implicated at post-mortem. The most common drugs implicated alongside methadone were etizolam (78%, 215), heroin/morphine (45%, 125), cocaine (37%,102) and pregabalin (29%, 81). While these were the same substances also most commonly found co-implicated among prescribees, the percentage of non-prescribees with pregabalin co-implicated was significantly lower (29% compared to 41%) in 2020. Again, co-implication of these other drugs among this group increased over the time series (etizolam: 0% - 78%, heroin/morphine: 37% - 45%, cocaine: 6% - 37% and pregabalin: 0% - 29%).

Presence of Other Prescribed Medications[58]

Most deaths among people prescribed OST involved the consumption of other substances, some of which (e.g. diazepam, gabapentin) may have been legitimately prescribed. Using data from PHS's Prescribing Information System (PIS), it is possible to identify recent (within 90 days of death) dispensing activity in relation to specific medications (Figure 8). Comparing this information with drugs present in the body at post-mortem provides information on whether people had taken prescribed medication and the extent to which drugs may have been diverted to the illicit market.

[58] Previous reports categorised 'recent' prescriptions as those within 30 days of death. This has been changed to 90 days following advice from PHS prescribers. In some cases exact dispensing dates are not provided in the Prescribing Information System (PIS), which instead defaults to the last day of the month, when the prescription was paid. While there may be issues with the reliability of some dates, the analysis presented provides a robust estimation of people prescribed specific drugs. While CHI completeness is more problematic in relation to OST drugs, information on other types of prescriptions may also be influenced by this issue.

Figure 8: Prescriptions within 90 days of Death (NDRDD/PIS: 2012-2020)



Anti-depressants

In 2020, anti-depressant prescribing was observed in the three months prior to death in 55% of DRDs (729). There has been an overall increasing trend in recent anti-depressant prescribing from 2012 (43%) onwards, which reached a high in 2017 (59%) (Table 63 and Figure 9).

Different patterns of drug prescription were observed between intentional and non-intentional deaths. Where known, in 2020, recent prescription of any anti-depressant was higher in intentional DRDs (79%, 45/57) than non-intentional DRDs (54%, 684/1,275).

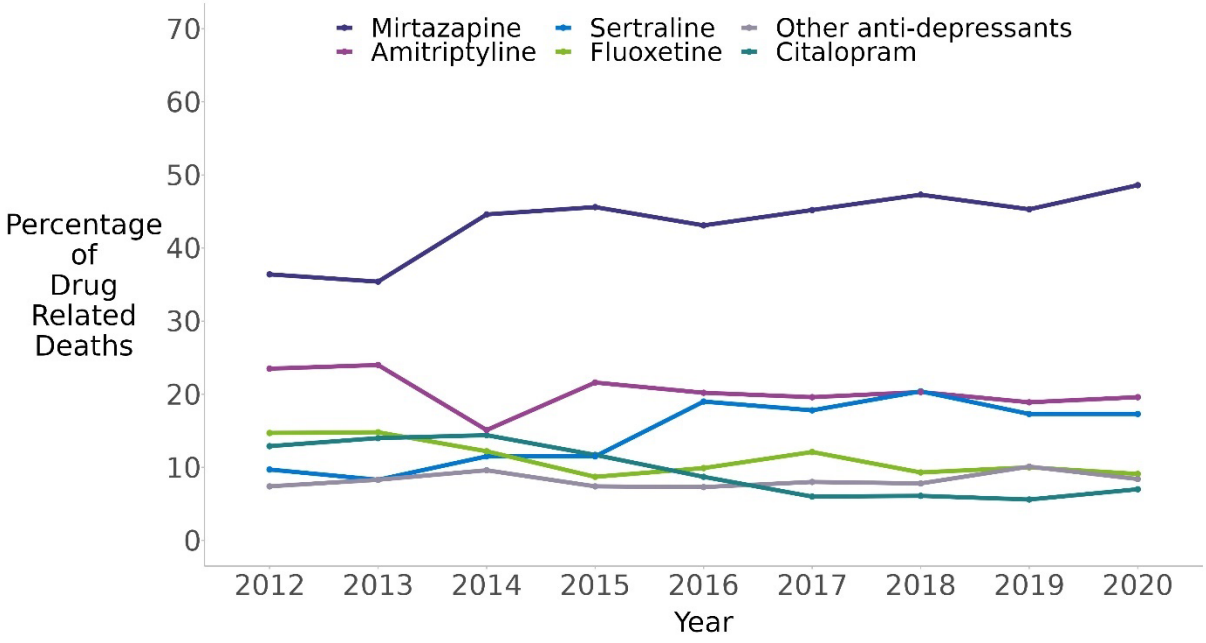
Over half (421/729, 58%) of those recently prescribed anti-depressants had them present at post-mortem (Table 64). Anti-depressants were also found at post-mortem in 15% (93/603) of people not recently prescribed them. Anti-depressant presence at post-mortem decreased over the time series among both groups (2012: 71% and 22% respectively).

In 2020, recent anti-depressant prescribing was observed among 59% (290) of those prescribed an OST (methadone or buprenorphine (with or without naloxone)) at the time of death and 52% (439) of those who were not. Both percentages increased over time from 2012 (OST: 50%, non-OST: 40%). Over the entire time series combined, recent anti-depressant prescriptions were more common among those prescribed OST (61%) than those not prescribed OST (50%) (data not shown in tables).

The type of anti-depressants prescribed to people who had a DRD has changed over time (Table 65 and Figure 9). In 2020, among people prescribed an anti-depressant in the 90 days before death, mirtazapine (49%, 354) was the most commonly prescribed drug, followed by amitriptyline (20%, 143), sertraline (17%,126), and fluoxetine (9%, 66). The increasing trend in recent mirtazapine and amitriptyline prescribing continued, rising from 37% and 24% in 2012. Sertraline prescribing increased over the time series from 10% of DRDs in 2012. There was a decreasing trend in citalopram prescribing from 13% in 2012 to 7% in 2020. For other anti-depressant drugs there was no clear trend over time. It should be noted that the amitriptyline trend may include instances where the drug was prescribed for chronic pain relief (it was not possible to exclude these cases).

The reduction in citalopram prescribing is likely to be associated with warnings regarding co-prescribing of drugs known to prolong the QT interval [12-14]. In 2020, citalopram had recently been prescribed to 4% (51/1,332) of people who had a DRD. Among these people, methadone and citalopram (both of which are known to prolong the QT interval) were recently co-prescribed in three (6%) cases. Of twelve deaths where both drugs were found present at post-mortem, recent co-prescribing had occurred in one (11%) case. Over the time series, a total of 52 (1%) people who had a DRD were prescribed both methadone and citalopram within 90 days of death. In 89 instances of co-presence, 22 (25%) people had recently been co-prescribed these drugs (data not shown in tables).

Figure 9: Anti-Depressant Most Recently Prescribed by Year (NDRDD/PIS: 2012-2020)



Gabapentinoids

Gabapentin and pregabalin are prescribed medications for epilepsy and chronic pain, but at high doses these drugs have been reported to enhance or 'potentiate' the subjective effects of opioids [15]. Recent (within three months) prescribing of these drugs (collectively referred to as gabapentinoids) was observed in 25% (327) of DRDs in 2020. The percentage of people recently prescribed gabapentinoids increased over time (from 13% in 2012).

In cases where gabapentinoids had recently been prescribed, presence of these drugs at post-mortem was 80% (261/327) in 2020. Where not prescribed, these drugs were found in 36% of DRDs (359/1,008). In 2020, among people recently prescribed these drugs, gabapentin or pregabalin were implicated in 196 deaths (60% of recently prescribed cases), which has increased over time (2012: 22%). Opioids (heroin/morphine, methadone or buprenorphine) were also implicated in 156 (80%) of these deaths (data not shown in tables).

In 2020, prescribing of gabapentinoids in the three months prior to death was observed among 30% (149/493) of those prescribed an OST (methadone or buprenorphine (with or without naloxone)) at the time of death and 21% (178/842) of those who were not. Both percentages increased over time from 2012 (OST: 18%, non-OST: 11%). Over the time series combined, gabapentinoid prescriptions were more common among those prescribed OST (32%) than those not prescribed OST (21%) (data not shown in tables).

Diazepam

In 2020, diazepam was prescribed in the 90 days prior to death to 20% (261) of the NDRDD cohort. Recent prescribing of diazepam fluctuated over the time series ranging between 19% and 25% (Table 64). In 2020, diazepam was found present at post-mortem in 54% (142/261) of people to whom it was recently prescribed, following a decrease over the time series (2012: 92%) (Table 64)

Presence of diazepam among those not recently prescribed it was significantly lower in 2019 and 2020 than in any other year; (21% and 19% respectively) of relevant people, decreasing over the time series from 74% in 2012 to 29% in 2018. This reduction is likely to have been associated with the emergence of street benzodiazepines such as etizolam.

In 2020, diazepam was implicated in 56 deaths (21%) of people recently prescribed it. Opioids (heroin/morphine, methadone or buprenorphine) were also implicated in 47 (84%) of these deaths (data not shown in tables).

Recent diazepam prescribing was observed among 21% (103/493) of those prescribed an OST at the time of death and 19% (158/842) of people who were not. Recent diazepam prescribing decreased over the time series among people prescribed OST (2012: 27%), while there was no clear trend among the non-OST group. Over the time series, those prescribed OST were more likely to be prescribed diazepam (25%) than those who were not (20%) (data not shown in tables).

Anti-psychotics

Anti-psychotics such as quetiapine are primarily used to manage psychosis (including delusions, hallucinations, paranoia or disordered thought) in schizophrenia and bipolar disorder. Prescribing of anti-psychotics in the three months prior to death was observed in 19% (254) of DRDs in 2020. The percentage of people recently prescribed anti-psychotics has been relatively stable over the time series (2012: 16%) (Table 63).

In 2020, where anti-psychotics had recently been prescribed, presence at post-mortem was 25% (64/254), this was significantly lower than previous years (excluding 2012). Where not prescribed, they were found in 3% of DRDs (27/1,081) - the percentage not prescribed has been stable over the time series (Table 64).

Rather than examining co-prescribing of anti-psychotics with all OSTs, focusing on co-prescribing of methadone and anti-psychotics is more worthwhile, as both are specifically associated with risk of QT interval prolongation [13, 14]. In 2020, 101 (8%) people had recently been co-prescribed methadone and anti-psychotics. Of the 55 people who had a DRD and who had anti-psychotics and methadone present at post-mortem, 26 (47%) had recently been co-prescribed these drugs. Over the time series combined, a total of 595 (8%) people were prescribed this combination of drugs within 90 days of death and, of the 452 people with methadone and anti-psychotics present at post-mortem, 271 (60%) had recently been prescribed these drugs (data not shown in tables).

Broadening this analysis to include other drugs known to prolong the QT interval, 8% (104) of people who had a DRD in 2020 had been prescribed methadone and either citalopram or an anti-psychotic drug within 90 days of death (a total of 639 (8%) over the time series). Comparing prescription of these drugs with presence at post-mortem, 22 of the 66 people (33%) with this drug combination found at post-mortem were prescribed these drugs within 90 days of death (2% of all 2020 DRDs and 277 DRDs (4%) over the time series combined) (data not shown in tables).

Z-hypnotics

Z-hypnotic drugs (principally zopiclone and zolpidem) are used to treat insomnia (a common condition among people who use drugs) and have similar effects (and side-effects) to benzodiazepines. In 2020, z-hypnotics were prescribed within 90 days of death to 12% (163) of the NDRDD cohort. This percentage was stable over time (Table 63).

In 2020, z-hypnotics were found present at post-mortem in 15% (25/163) of DRDs where the person was recently prescribed these drugs. Presence of z-hypnotics at post-mortem among prescribees increased from 2012 (21%) to 2015 (46%) but has since decreased. Presence of z-hypnotics among those not recently prescribed these drugs was 1% (Table 64).

In 2020, recent z-hypnotic prescribing was observed among 11% (53/493) of those prescribed an OST at the time of death and 13% (110/842) of those who were not. Over time, both groups had similar levels of prescribing with no clear patterns of change (data not shown in tables).

Weak opioid analgesics

Dihydrocodeine prescribing in the 90 days prior to death was relatively infrequent (111, 8% of DRDs in 2020) and was fairly static over time. Where recently prescribed, dihydrocodeine was found at post-mortem in 70% (78/111) of deaths and where not prescribed, in 11% (130/1,224) of deaths – both percentages were fairly consistent over the time series. It is not appropriate to analyse dihydrocodeine prescription by OST group, as dihydrocodeine is often prescribed in order to manage withdrawal symptoms during opioid detoxification.

Recent tramadol prescribing was evident for a small percentage of people who had a DRD in 2020 (58, 4%) and decreased over the time series (Table 63). Tramadol was found present in 62% of recently prescribed people (36/58) in 2020. Tramadol presence among those not recently prescribed was 4% (46/1,277) and has been relatively consistent over time. In 2020, those prescribed OST were less likely to be

prescribed tramadol than those who were not (2020: 3% (13/493) for OST prescribees, 5% (45/842) for non-OST prescribees) (data not shown in tables).

Strong opioid analgesics

Reflecting concerns about deaths related to the prescribing and/or use of high-strength opioid painkillers, recent oxycodone and fentanyl prescribing was examined.

In 2020, 24 people who had a DRD (2%) were prescribed oxycodone (including the extended-release formulation oxycontin) in the 90 days before death. Recent oxycodone prescribing was rare, with only 132 cases observed across the time series (2% of 7,667 DRDs) (Table 63). In 2020, oxycodone was present in 83% (20) of cases where it had been prescribed (Table 64). There were a further 18 deaths where oxycodone was found present among non-prescribees (1%). Across the time series, there were only eight cases where a recent oxycodone prescription was observed alongside an OST treatment (data not shown in tables).

Fentanyl prescribing among people who had a DRD was extremely rare. Over the time series, a total of 37 people (0.5% of 7,677 DRDs) had recently been prescribed fentanyl. In 2020, fentanyl was found present at post-mortem in nine people (most of whom had not recently been prescribed the drug). Across the time series, there were only three deaths where fentanyl and an OST treatment were recently co-prescribed (data not shown in tables).

Summary

- Among opioid-related deaths, the percentage of people prescribed an OST at the time of death increased from 34% in 2012 to 46% in 2020.
- In 2020, most OST prescribing at the time of death was well established (one year or more: 68%), via supervised consumption (71%) and within recommended therapeutic dose guidelines (62%).
- In 2020, 49% of people prescribed OST had heroin/morphine present at death, similar to the percentage among those not prescribed OST (52%).

- Methadone was implicated in 53% (706) of DRDs registered in Scotland in 2020 - the highest number and percentage in the time series. The percentage of these deaths that occurred among people not prescribed methadone (40%) was also higher than in previous years.

- Prescribing of gabapentin or pregabalin within 90 days of death increased over time to 25% in 2020. Over the time series combined, gabapentin or pregabalin prescriptions were more common among those prescribed OST (32%) than those not prescribed OST (21%).

- Co-prescribing of methadone and either citalopram or anti-psychotics (all associated with a life-threatening ventricular arrhythmia called torsades de pointes) occurred in 101 (8%) cases in 2020. These drugs were co-present in 55 DRDs, 26 (47%) of which were preceded by recent co-prescribing.

- Recent prescribing of strong opioid painkillers was very rare. In 2020, oxycodone or fentanyl were only prescribed to 25 people who had a DRD.

Conclusion

Data from the National Drug-Related Death Database (NDRDD) provides detailed information on Drug-Related Deaths (DRDs) in Scotland, describing the background and circumstances of those who died and highlighting potential areas for intervention.

For the first time in the NDRDD publication series, this report discussed the same DRD cohort (where information was available) as reported in the National Records of Scotland's (NRS) annual publication [1].

This NDRDD report highlights some key points and themes for data recorded on DRDs registered in 2019 and 2020 when numbers of both drug-related and opioid-related deaths were increasing and at their highest recorded levels in Scotland.

The most recent Accredited Official Statistics on DRDs report that, in 2023, 1,172 people died of a DRD in Scotland, an increase of 12% (121 deaths) compared with 2022. Scotland’s DRD rate remains the highest in Europe [1].

Explanations for these high numbers of DRDs are complex. In spite of the delay in publishing these NDRDD data, they provide important insights into this ongoing public health challenge for Scotland.

Demographics:

- Scotland has a cohort of people with a drug problem who have multiple complex health and social care needs. Many people who had a DRD shared similar characteristics: they were male, aged over 35, socially deprived, lived alone and had a history of long term and / or injecting opioid use and near fatal overdose. In 2020, over half (54%) of the people who died resided in the 20% most deprived neighbourhoods in Scotland (Deprivation quintile 1).

- Most people who had a DRD in 2020 lived in their own home (76%). Over half (63%) lived alone all of the time, with this percentage increasing over the time series (2012 to 2020).

Contact / Interaction with Services:

- Around half (47%) of people who died previously experienced a near fatal overdose.
- Two thirds (65%) of people (73% of those whose death was opioid-related) were in contact with a service with the potential to address their problematic drug use or deliver harm reduction interventions in the six months before death.
- Over one third of people in 2020 who had a DRD were prescribed an Opioid Substitution Therapy (OST) drug (mainly methadone) at the time of death. Females were consistently more likely than males to be prescribed an OST at the time of death.
- Thirty-one percent of people who had a DRD in 2020 had been discharged from a general acute hospital in the six months prior to death.

Prescribing / Toxicology:

- In 2020, almost all (96%) DRDs occurred after the consumption of multiple substances. Etizolam (60%), methadone (53%) and heroin/morphine (45%) were the most commonly implicated substances.
- Gabapentin and pregabalin implication increased over time, potentially due to their use to enhance the effects of opioids. In 2020, gabapentin or pregabalin were implicated in 502 deaths, 86% (429) of which were also opioid-related.
- Methadone was implicated in 53% (706) of DRDs registered in Scotland in 2020 - the highest number and percentage in the time series. The percentage of these deaths that occurred among people not prescribed methadone (40%) was also higher than in previous years.

PHS hope to deliver the next report in this statistical series (on deaths in 2021 and 2022) with a shorter delay than was the case for this report. This will be part of PHS's work towards achieving the objective of publishing detailed information on DRDs

within one year of death, satisfying **recommendations** raised from the NDRDD Short Life Working Group [3]. PHS has already implemented some of these recommendations (see **Appendix 3** for further detail) but will continue this programme of work to modernise the NDRDD and to further improve the timeliness and impact of reporting in future statistical series of this publication.

References

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Glossary

Benzodiazepine-type NPS

These drugs are part of the wider benzodiazepine class of drugs which induce sedation by reducing irritability or excitement. At low doses, they reduce anxiety and produce a peaceful effect. Higher doses may result in slurred speech, staggering gait, poor judgement, and slow, uncertain reflexes. Higher doses may also be used as a hypnotic to induce sleep. In the event of an overdose or if combined with another sedative (including opioids), many of these drugs can cause unconsciousness and even death. Benzodiazepine-type NPS (such as etizolam and diclazepam) produce similar effects to prescribed benzodiazepines (such as diazepam and alprazolam). Benzodiazepine-type NPS are, by definition, not licensed for medical use or legally controlled at the point they become available in a specific country's illicit drug market. Individual benzodiazepine-type NPS may not be licensed for use in specific countries because they have proven to be less efficacious in treatment or because they are regarded as unsafe due to other characteristics such as potency, bioavailability or biological half-life.

Cannabinoid-type NPS

These drugs mimic cannabis, but they bear no relation to the cannabis plant except that the chemicals which are blended into the base plant matter act on the brain in a similar way to cannabis. Alternative names for these drugs are annihilation, black mamba, clockwork orange, K2, mamba, paper, prison weed, and synthetic cannabinoid receptor agonists (SCRAs). The effects of these are similar to cannabis intoxication: relaxation, altered consciousness, disinhibition, a state of being energised and euphoria.

Concomitant

Concurrent

DRD

Drug-Related Death

EMCDDA

European Monitoring Centre for Drugs and Drug Addiction

ICD

International Classification of Diseases

ISD

Information Services Division

NDRDD

National Drug-Related Deaths Database

NK-PWUD

People Not Known as a Person who Used Drugs

NPS

Novel Psychoactive Substances. Drugs which affect the central nervous system and which are not licensed for medical use or legally controlled at the point they become available an illicit drug market.

NRS

National Records of Scotland

PHS

Public Health Scotland

PIS

Public Health Scotland's Prescribing Information System

PWID≤10

People who Injected Drugs for 10 years and less

PWID>10

People who Injected Drugs for more than 10 years

PWUD

People who Used Drugs (but were not known to inject)

OST

Opioid Substitution Therapy

QT Interval

The time between the start of the Q wave and the end of the T wave in the heart's electrical cycle, representing depolarization and repolarization of the ventricles. Certain drugs are known to prolong the heart’s QT interval, potentially leading to a life-threatening ventricular arrhythmia called ‘torsades de pointes’.

Regimen

A prescribed course of medical treatment, diet, or exercise for the promotion or restoration of health.

SIMD

Scottish Index of Multiple Deprivation

Stimulant-type NPS

These drugs mimic substances such as amphetamines, cocaine, or ecstasy/MDMA and include BZP, mephedrone, MPDV, NRG-1, Benzo Fury, MDAI, ethylphenidate etc. People who take these drugs can feel energised, physically active, fast-thinking, very chatty and euphoric.

Contact

Gordon Hunt, Principal Information Analyst
Drugs Team
phs.drugsteam@phs.scot

Femke de Wit, Senior Information Analyst
Drugs Team
phs.drugsteam@phs.scot

For all media enquiries please email **phs.comms@phs.scot** or call 0131 275 6105.

Further information

Further information and data for this publication are available from the **publication page** on our website.

The next release of this publication will be Autumn 2025.

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Appendix 1 – Data Collection

Appendix 1.1 – Data Collection Development

National Drug-Related Death Database Governance

The National Forum on Drug-Related Deaths (NFDRD) Research and Data Monitoring Subgroup (formerly known as the Data Collection Subgroup) established the National Drug-Related Death Database (NDRDD), oversaw the process of data collection and steered the delivery of this report until 2015.

Between 2016 and 2018, oversight of the NDRDD lay with the **Partnership for Action on Drugs in Scotland (PADS)** Harms Subgroup.

More recently, Information Services Division (ISD) Scotland (now part of Public Health Scotland (PHS)) and the Scottish Government jointly convened a Short Life Working Group (SLWG) on Drug Death Reporting (see **Appendix 3**). While the scope of this group was primarily on the statistics and reporting, its recommendations included some elements relating to governance.

Whilst the NDRDD is led by PHS, all oversight groups were comprised of people from a range of organisations and professional backgrounds.

The National Drug-Related Death Database Data Collection Form

The proforma used for NDRDD data collection was developed by the NFDRD Data Collection Subgroup. It was designed to collect data on a wide range of details concerning people's social circumstances and health prior to death. These variables include socio-demographic information, drug use history, medical history, circumstances surrounding the death, details of substitute prescriptions and drugs detected in the person's body through toxicological and pathological examination. In addition, data are collected regarding the individual's contact with services (e.g. health, social care and criminal justice) prior to death. Although the dataset has been

reviewed each year since its inception, the core data items collected currently remain unchanged.

Recommendations raised as part of the SLWG were published in April 2022, which included support for a full dataset review as a means of overcoming some of the current challenges faced by the NDRDD. In 2023, PHS held a series of meetings with stakeholders and partners to conduct this full dataset review and it is anticipated that an updated dataset will be used in the collection of data for deaths registered in 2026.

Appendix 1.2 – Data Collection Process

Case Identification

In the event of an unexpected death, the police complete a Sudden Death Report which is passed to the Procurator Fiscal. The Procurator Fiscal then calls for a full pathological and toxicological post-mortem examination to be conducted to determine the cause of death.

Based on the information available to them locally and from PHS, the Local Critical Incident Monitoring Group and local Data Collection Co-ordinator decide if a death matches the inclusion criteria for the NDRDD (i.e. if it is likely to be a Drug-Related Death (DRD) as per the NDRDD definition). If these criteria are met, a case record is submitted to PHS. When numbers of DRDs registered in a specific year are confirmed by NRS, PHS request that any missing cases are submitted by local Data Collection Co-ordinators.

Alignment with the NRS definition in this publication, including applying this over the time series, has however resulted in missing cases due to deaths not being submitted to NDRDD (explained further in **Appendix 2**). It is anticipated that data submissions will improve in future reporting years, improving data quality.

Data Sources and Data Collection

In addition to the Sudden Death Report completed by the police and the pathology report, information surrounding the circumstances of death and information on the person who died is collected from a wide range of sources. These sources include the Scottish Prison Service and Scottish Ambulance Service as well as notes from drug treatment services, GPs, psychiatrists, hospitals and pharmacies. For most NDRDD data items, information sources were identical between NHS Boards. However, for some items there may be local variations in their recording practices.

Information Support, Data Entry and Data Transfer

Prior to the collection of data on 2014 deaths, PHS implemented a secure online database enabling direct entry of DRD information by Data Collection Co-ordinators. Information was recorded and validated using the secure online Oracle database administered by PHS. These data were then anonymised and added to the composite NDRDD dataset.

Incorporation of 'Drugs Implicated' Data from National Records of Scotland

The NDRDD dataset provides information about the drugs present in the body at post-mortem. National Record of Scotland (NRS) provides additional information about whether substances were (i) implicated in the death and (ii) not implicated in the death. Pathologists provide NRS with additional information about most DRDs. However, when information is not received, NRS assumes all drugs mentioned on the death certificate were implicated in the death.

Presence of a drug in the body at post-mortem does not necessarily mean that the drug contributed to death and interpretation of post-mortem toxicology is complex. The determination as to whether a drug has caused or contributed to death lies with the pathologist who will consider toxicological findings in combination with pathological and circumstantial evidence before coming to a conclusion.

This report incorporates this information, which was supplied to PHS by NRS with the relevant permissions and subsequently matched to the NDRDD dataset. The

supplementary NRS information allows for a more meaningful analysis of the circumstances of individual drug deaths, taking into account the substances that have contributed towards deaths.

Appendix 1.3 – Data Quality Assurance

Within the electronic spreadsheet and Oracle database, data were automatically checked at the point of data entry and subsequently cross-matched with records obtained from the NRS Vital Events database which contains the records of all those who die in Scotland. ICD-10 diagnosis codes were then extracted and compared with the relevant codes within the NDRDD. This quality assurance process makes it possible to thoroughly investigate any differences between the NDRDD and NRS data. Details regarding the outcomes of this matching process can be found in **Appendix 2**.

Appendix 1.4 – Statistical Testing

Data were analysed descriptively using R.

Comparisons of proportions where samples were expected to be similar in nature (e.g. single year NDRDD cohorts) were tested using a T-test. A chi-square test was used where groups were thought to be different in nature (e.g. males and females). Where comparisons involved small numbers of cases (e.g. inter-year comparison of Availability of Take-home Naloxone), Fisher's exact test was used. While the T-test was used where individual years appeared to be outliers, a chi-square test for trend was used where there was evidence of linear change over time.

Differences in means were tested using an Independent Samples T-test and Welch's ANOVA. Medians were tested using Mood's Median Test and Kruskal-Wallis Test.

Data Confidentiality and Information Governance

The data collected for the NDRDD are not directly covered by the Data Protection Act 2018, which relates only to living people. However, PHS maintains a duty of

confidence to protect data relating to deceased people after their death. Person-identifying details regarding each individual are entered into the NDRDD as this information is necessary for linkage to other datasets. All measures are taken to protect the confidentiality of these data and the NDRDD project adheres to the seven Caldicott Guardian Principles.

Appendix 2 – Construction of the 2019 and 2020 NDRDD Cohorts

The National Drug-Related Deaths Database (NDRDD) provides a descriptive account of deaths on which National Records of Scotland (NRS) have published Accredited Official Statistics in its annual DRD report [1,2].

NRS review the death certificates for all deaths registered in a given calendar year before determining whether or not they were drug-related. Some deaths are also reviewed jointly by NRS and senior clinicians at PHS. The 2020 NRS figure of 1,339 DRDs (1,280 in 2019) was the outcome of this comprehensive process.

Matching National Drug-Related Death Database Records to National Records of Scotland Death Records

As in previous NDRDD reports, data were quality assured by matching records to those held by NRS. In 2020, four (out of 1,339) NRS records did not match an NDRDD submission of a DRD (35 out of 1,280 in 2019). Therefore, the final 2020 NDRDD cohort (analysed for this report) contained a subset of 1,335 records where further information was available (1,245 in 2019). The number of DRDs submitted to NDRDD that matched an NRS record are shown in the table below.

Year death registered	NRS	NDRDD[1]	Difference (not matched)	Percentage complete
2009	545	399	146	73.2%
2010	485	362	123	74.6%
2011	584	414	170	70.9%
2012	581	511	70	88.0%
2013	527	483	44	91.7%
2014	614	587	27	95.6%
2015	706	691	15	97.9%
2016	868	846	22	97.5%
2017	934	918	16	98.3%

Year death registered	NRS	NDRDD[1]	Difference (not matched)	Percentage complete
2018	1,187	1,080	107	91.0%
2019	1,280	1,245	35	97.3%
2020	1,339	1,335	4	99.7%

[1] NDRDD definition did not include deaths by suicide prior to 2012.

A breakdown of the reasons for records (represented by 'Data Excluded') and number of records not submitted to NDRDD or excluded from analysis are shown below, for each reporting year.

	Data Excluded		
Year	No information submitted for DRDs which align with the NRS definition[1]	Local coordinators unable to meaningfully collect data[2]	Total (NRS DRDs not matched in NDRDD)
2009	136	10	146
2010	119	4	123
2011	155	15	170
2012	67	3	70
2013	29	15	44
2014	12	15	27
2015	15	0	15
2016	22	0	22
2017	7	9	16
2018	19	88	107
2019	3	32	35
2020	1	3	4

[1] Not submitted to NDRDD: deaths were not considered to meet the NDRDD definition by local coordinators at the time of data collection and issues with PHS quality assurance processes.

[2] Based on assessment of inclusion criteria: valid data entry information was available on whether an individual, prior to death, had been receiving treatment for OST; had contact with drug treatment services; or had used drugs in the past.

Reasons why National Records of Scotland DRDs were not Captured by the National Drug-Related Death Database Data Collection

Review of a death by the Local Critical Incident Monitoring Group and subsequent data collection for NDRDD by the local Data Collection Co-ordinator is dependent on whether, based on the information available, a death is considered likely to match the inclusion criteria for the NDRDD.

As specific deaths are not confirmed as DRDs until NRS publish their Accredited Official Statistics [1] in August of the year after the death was registered, information from Police Sudden Death reports and the Crown Office and Procurator Fiscal Service (COPFS) is used to make an interim judgement. This can be limited, and data for a specific death may not be submitted to NDRDD if, at the time of data collection:

1. The pathologist (or the Local Critical Monitoring Group) decided that the Cause of Death was ‘unascertained’ and that the death should therefore not be classed as a DRD whereas the information that NRS received had indicated that the death was a DRD.

2. The NRS decided that the death was a DRD because an illicit drug was present in the toxicology, but the pathologist (or the Local Critical Incident Monitoring Group) considered that:

a. either the level of the illicit drug was so small that the death could not be considered as being a DRD, or

b. the only illicit drug(s) listed in the toxicology were being prescribed to the deceased at the time of death and therefore these drugs should not be considered as being illicit

NRS is not informed about the levels of drugs found, or whether the drugs had been prescribed to the deceased. In any case, the 'UK Drug Strategy' DRD definition (which NRS applies) does not exclude deaths because there was a low level of drug found or because they had been prescribed to the deceased (see Paragraph A2.2 in **Annex A** of the NRS report on 2020 deaths).

3. Where the pathologist's Cause of Death consisted of several elements, only one of which was related to illicit drug intoxication, and where the pathologist (or the Local Critical Incident Monitoring Group) decided that the non-illicit drug element was the main cause of death whereas the NRS decided that the death was in fact drug-related (it should be noted that in the majority of cases where the Cause of Death consists of several elements the NRS reach the same conclusion as the pathologist as to what the single main Cause of Death is).

4. The Data Collection Co-ordinator was not informed about a DRD. For example, when there was no evidence at the time of death to suggest a potential DRD, the Police Sudden Death report would not show the death as being a suspected DRD. Occasionally, via post-mortem and toxicology testing, the Procurator Fiscal will later find that such a death was a DRD. In some areas the Procurator Fiscal may not inform the police and the Local Critical Incident Monitoring Group about such a DRD and consequently PHS will not be sent a NDRDD record. The NRS will normally know about these DRDs as they receive toxicology and cause of death information directly from the pathologist. Note that this scenario should not arise in areas where the pathologist has direct links with the Local Critical Incident Monitoring Group and the Data Collection Co-ordinator.

5. There is an ongoing criminal investigation surrounding a DRD and the Procurator Fiscal has not given permission for certain information relating to a death to be released to the Data Collection Co-ordinator and the Co-ordinator has consequently been unable to complete a NDRDD record for the death. However, the NRS may have enough available information to define the death as a DRD.

6. For the NDRDD, the place where someone dies determines what area the death is assigned to. However, NRS's figures for DRDs in Scotland are normally registered by the geographical area of the usual place of residence of the deceased. If the place of residence is outside Scotland, then the location of death within Scotland is assigned. In the case of someone who had recently moved residence within Scotland, NRS is likely to count the death by the former area of residence (provided that he/she had been resident there for at least 12 months). This could lead to small discrepancies in the number of DRDs that NRS and NDRDD assign to a particular area of Scotland.

When the DRDs registered in a specific year are confirmed by NRS, lists of these are sent to PHS and then distributed to local Data Collection Co-ordinators. At that time, PHS requests that data on cases which are missing from the NDRDD are collected and submitted to the database. However, given the delay, local Data Collection Co-ordinators may be unable to collect data on such cases or only able to collect limited data.

Since 2022, PHS has received toxicology and pathology information from COPFS and routinely distributed this to Co-ordinators in order to address differences in access to information between areas and better inform the local process of deciding whether to review a death. However, this process was not in place for the 2019 and 2020 data collections.

Data Recorded as 'Unknown' across NHS Boards in 2019 and 2020

Due to the data collection challenges experienced by local coordinators (including issues related to COVID-19 and data accessibility), higher numbers of missing or 'Unknown' responses were recorded for some NDRDD proforma questions. The data quality issues associated with specific questions are highlighted in the table below. This considers questions where greater than or equal to 10% of responses were 'Unknown' in either 2019 or 2020, or were generally increasing / remain high across the time series.

		Percentage of 'Unknown' Cases		Health Boards (>10% 'Unknown')
NDRDD Sub Section	**NDRDD**	**2019**	**2020**	
Demographics	Living Where	7.9%	9.8%	GGC, Lanarkshire, Tayside
	Living With	14.8%	13.4%	GGC, Lanarkshire, Lothian, Tayside
	Parent/Parental Figure	13.2%	14.5%	GGC, Lanarkshire, Tayside
	Living With Children	12.4%	15.8%	GGC, Lanarkshire, Tayside
Substance Use History	Length of Drug Use	26.0%	27.2%	Fife, GGC, Lanarkshire, Lothian, Tayside
	Length of Injecting Drug Use	34.4%	29.7%	Fife, GGC, Lanarkshire, Lothian, Tayside
	Drug Detox	26.3%	23.6%	Fife, GGC, Lanarkshire, Lothian, Tayside
	Number of Overdoses Experienced	10.1%	10.0%	Fife, Lanarkshire, Lothian, Tayside
Contact with Services	Police Custody	14.7%	14.0%	Grampian, Lanarkshire, Tayside
	Prison Custody	25.5%	18.4%	Lanarkshire, Lothian, Tayside
Circumstances of Death	Place of Drug Use	12.9%	15.5%	Fife, GGC, Lanarkshire, Lothian, Tayside
	Persons Present at Scene of Death	11.6%	13.5%	Ayrshire & Arran, GGC, Lanarkshire, Lothian, Tayside

NDRDD Sub Section	NDRDD	Percentage of 'Unknown' Cases		Health Boards (>10% 'Unknown')
		2019	2020	
	Resuscitation Attempted	10.3%	12.1%	Ayrshire & Arran, GGC, Lanarkshire, Lothian, Tayside
	Take-Home Naloxone Available (opioid related deaths)	52.3%	74.5%	Fife, Grampian, GGC, Lanarkshire, Lothian
	Take-Home Naloxone Supplied	43.1%	49.8%	Fife, GGC, Lanarkshire, Lothian, Tayside
Prescribing	OST - Supervision Status (All OST)	18.9%	19.9%	Fife, GGC, Lanarkshire, Lothian, Tayside
	OST - Length of Time in Receipt	28.6%	30.4%	Fife, Grampian, GGC, Lothian, Tayside

Appendix 3 – NDRDD Drug Death Reporting Short Life Working Group

Some of the issues described in this report in relation to data quality informed the decision by Information Services Division (ISD) Scotland (now part of Public Health Scotland) and the Scottish Government to jointly convene a Short Life Working Group (SLWG) on Drug Death Reporting.

Taking particular account of the increasing volume of DRDs and the difficulties experienced in gathering information about them, it was felt that the role of the NDRDD in the context of drug death reporting in Scotland needed to be formally evaluated. Having started this process in 2019, Public Health Scotland (PHS) and the Scottish Government originally intended to host a series of meetings during 2020. However, the COVID-19 pandemic necessitated a delay and meetings were instead held in the first half of 2021.

In the course of four meetings, a representative multi-agency SLWG concluded that the NDRDD data collection was valuable, but was not realising its potential in helping to prevent DRDs due to reporting delays and the limited accessibility of its findings. PHS published a **summary** of the Short Life Working Group findings and recommendations in April 2022.

At the beginning of 2022, PHS received funding from the Scottish Government to implement these recommendations. While further action is required in order to fully address the issues identified, PHS has already implemented the following changes:

- Allocated additional data management, analytical and communication resources to NDRDD reporting.
- Appointed a National DRD Data Co-ordinator.
- Change to reporting by registration of death (rather than year of death) as in the NRS reports.
- Incorporation of deaths by suicide in the main findings of the NDRDD report.

- Providing alternative outputs and visualisations in order to enhance the accessibility of information for different audiences.

- Completion of a full review of the NDRDD dataset and engagement with partners to make better use of data linkage.

PHS will continue the programme of work to modernise the NDRDD and to further improve the timeliness and impact of reporting in future statistical series of this publication. This will be part of PHS's work towards achieving the objective of publishing detailed information on DRDs within one year of death.

Appendix 4 – Publication metadata

Publication title

The National Drug-Related Deaths Database (Scotland) Report: Analysis of Deaths registered in 2019 and 2020

Description

A detailed examination of Drug-Related Deaths registered in Scotland in 2019 and 2020 (including trend data from 2012 where available).

Theme

Health and Social Care

Topic

Drug Related Mortality

Format

PDF with Excel Tables

Data source(s)

Data from the National Drug-Related Deaths Database (NDRDD) held by PHS. Data are collected at a local level by data co-ordinators. For each record they access a variety of sources including drug treatment services, GPs, prisons, police etc. Data from the National Records of Scotland (NRS) for drug-related deaths in 2019 and 2020. This was supplied to PHS by the NRS for this report.

Date that data are acquired

April 2023

Release date

8 October 2024

Frequency

Biennial

Timeframe of data and timeliness

All drug-related deaths as reported in the NRS National Statistics annual publication that were registered in calendar years 2019 and 2020 are considered relevant.

Continuity of data

This report is the first in the NDRDD publication series where the timeframes and inclusion criteria for NDRDD reporting are fully aligned with those of NRS's Accredited Official Statistics. This change impacts these statistics in a number of ways:

- The figures shown in this report are based on calendar year of registration of death. As a result, these are not comparable to statistics from previous NDRDD reports which were based on calendar year of death.

- The main commentary in this report now includes deaths by suicide involving controlled drugs (as per the NRS definition), resulting in slightly higher numbers of DRDs included in each year. In previous NDRDD reports, deaths by suicide were described in a separate section, which compared their characteristics with those of 'non-intentional' deaths (mainly accidental overdoses).

- Inclusion of deaths by suicide in the main commentary means that the findings described in this report exclude years before 2012. This is because the NDRDD data collection definition was changed in 2012 to include deaths by suicide. Data collected prior to this change (2009, 2010 and 2011) have high levels of incompleteness and cannot be robustly compared with data from 2012 onwards. Data for 2009, 2010 and 2011 are shown in the tables accompanying this release.

Revisions statement

As a result of ongoing quality improvements, figures may be revised over time. There are no planned revisions.

Revisions relevant to this publication

None

Concepts and definitions

Detailed information of the deaths relevant to this report is shown in **Annex A** of the NRS report.

Relevance and key uses of the statistics

Planning; epidemiology; research; provision of services and access to services; improved understanding of topic area.

Accuracy

All records are validated when entered into the PHS database. Any issues identified within the record are highlighted to the data provider and corrected before analysis begins.

For varying reasons discussed in greater detail within the report, collection of robust and high quality NDRDD data became increasingly difficult for the reporting periods 2017 to 2020, resulting in a lower level of completeness for the data recorded. These have been discussed and highlighted in the report where appropriate.

Additionally, due to NDRDD reporting being fully aligned with NRS's Accredited Official Statistics, further data quality issues have been introduced across the time series. These issues are also discussed and highlighted in this report.

Completeness

Detailed breakdowns of completeness are available in the data tables.

Comparability

The data captured can be used for year-on-year comparisons. The data tables (**available on the publication page**) include findings from the previous yearly cohorts from 2009 onwards.

However, note that this publication is not comparable to statistics from previous NDRDD publications which were based on calendar year of death (rather than year of registration of death).

Note also that in this publication certain groupings and categories within specific proforma questions were modified during data processing to ensure the suitability of

categories for free-text entries and to ensure that all relevant areas are addressed and included in publication outputs:

- A category has been created for NDRDD Scene of Death Proforma Question: *Where pronounced dead - "Police" (i.e. Police Station).*
- A category has been created for NDRDD Scene of Death Proforma Question: *Place of drug use - "Public Transport"*.
- A category has been created for NDRDD Medical History Proforma Question: *Medical Conditions - "Head Injury"*
- A category has been moved within NDRDD Medical History: From *Medical Conditions* to *Psychiatric Conditions - "Recent Learning Disability/Disorder"*.

Accessibility

It is the policy of Public Health Scotland to make its web sites and products accessible according to published guidelines. More information on accessibility can be found on the **PHS website**.

Coherence and clarity

The report is available as a PDF file with tables clearly linked for ease of use.

Value type and unit of measurement

Counts, numbers and percentages

Disclosure

The PHS protocol on Statistical Disclosure Protocol was followed.

Official Statistics accreditation

Official Statistics

UK Statistics Authority assessment

N/A

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Help email

phs.drugsteam@phs.scot

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27 September 2024

Appendix 5 – Early access details

Pre-release access

Under terms of the 'Pre-release Access to Official Statistics (Scotland) Order 2008', PHS is obliged to publish information on those receiving pre-release access ('pre-release access' refers to statistics in their final form prior to publication). The standard maximum pre-release access is five working days. Shown below are details of those receiving standard pre-release access.

Standard pre-release access:

Scottish Government Department of Health and Social Care (DHSC)

NHS board chief executives

NHS board communication leads

Appendix 6 – PHS and official statistics

About Public Health Scotland (PHS)

PHS is a knowledge-based and intelligence driven organisation with a critical reliance on data and information to enable it to be an independent voice for the public's health, leading collaboratively and effectively across the Scottish public health system, accountable at local and national levels, and providing leadership and focus for achieving better health and wellbeing outcomes for the population. Our statistics comply with the **Code of Practice for Statistics** in terms of trustworthiness, high quality and public value. This also means that we keep data secure at all stages, through collection, processing, analysis and output production, and adhere to the Office for National Statistics '**Five Safes**' of data privacy.

Translations and other formats are available on request at:
phs.otherformats@phs.scot or 0131 314 5300.